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# INDIAN MEDICAL ASSOCIATION

VOLUME 24 NUMBER 4 CALCUTTA NOVEMBER 16, 1954

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# TABLE OF CONTENTS


| | Page |
|---|---|
| **ORIGINAL ARTICLES :** | |
| 1. Phaeochromocytoma—M. J. Shah and B. J. Vakil ... | 121 |
| 2. Pancreatic Calculi — Elizabeth Thomas and P. M. Stephen ... ... ... | 126 |
| 3. A Few Observations on the Nature and Aetiology of Anaemias—K. U. Jhatakia and S. J. Damany ... ... ... ... | 130 |
| **REFRESHER COURSE :** | |
| 1. Essential Hypertension—G. V. Satyanarayana Murthi ... ... ... ... | 133 |
| 2. Pleurisy—J. N. Berry ... ... ... | 137 |
| **SPECIAL ARTICLE :** | |
| Medical Education in Certain Western Countries —R. Viswanathan ... ... ... | 139 |
| **CASE NOTES :** | |
| 1. Spontaneous Haemorrhage—Base of Brain —D. J. Reddy and D. Bhaskara Reddy ... | 145 |
| 2. Adult Filaria (Bancrofti) in the Anterior Chamber of Human Eye—K. C. Chatterji ... | 146 |
| 3. Tuberculoma of the Liver—L. R. Sarin and J. C. Sarin ... ... ... ... | 147 |
| 4. Chordoma—Ganendra Kumar Chakravarti ... | 148 |
| **EDITORIAL :** | |
| Phaeochromocytoma ... ... ... | 149 |
| CURRENT MEDICAL LITERATURE ... ... | 152 |
| CURRENT TOPIC ... ... ... | 153 |
| NOTES AND NEWS ... ... ... | 154 |
| CORRESPONDENCE ... ... ... | 155 |
| REVIEWS ... ... ... ... | 156 |
| OBITUARY ... ... ... ... | 156 |
| SUPPLEMENT ... ... ... ... | |
| xxxi All India Medical Conference ... ... | 157 |
| iv Madhya Bharat Provincial Medical Conference ... | 158 |
| Branch Notes ... ... ... ... | 160 |



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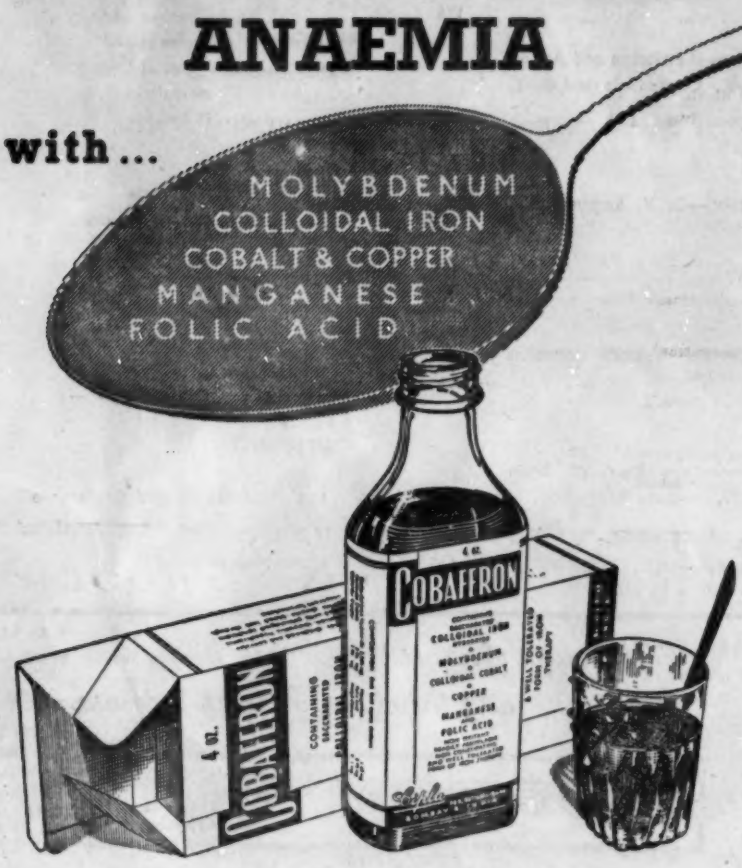


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## INDEX TO ADVERTISERS


| | Page | | Page |
|---|---|---|---|
| Air India International ... ... | xxiii | J. & A. Churchill Ltd. ... ... | iii |
| Alembic Chemical Works Co., Ltd. ... | xii | J. I. M. P. ... ... ... | xiv |
| Allen & Hanburys Ltd. ... ... | vii | John Wyeth & Brother Ltd. ... ... | xxxiv |
| Allied Photographics Ltd. ... ... | xxi | Lederle Laboratories (India) Ltd. ... | i |
| Amalgamated Chem. & Dystuffs Co. Ltd. | xxv | Lever Brothers (India) Ltd. ... ... | xiii |
| Bengal Chem. & Pharm. Wks. Ltd. ... | Front Cover | Linguaphone Institute (India) Ltd. ... | xxx |
| British Drug Houses (India) Ltd. ... | xxxi | May & Baker (I) Ltd. ... ... | xvii,xxix |
| Calcutta Chemical Co. Ltd. ... ... | 3rd Cover | Merck & Co., Inc. ... ... | viii |
| Capco Ltd. ... ... ... | xv | Neo-Pharma Ltd. ... ... | ix,x |
| Carr & Co., Ltd. ... ... ... | xxv | Nestle's Products (India) Ltd. ... | xi |
| Chemical Association ... ... | xxxiii | Oriental Research & Chemical Laboratory Ltd. ... | xxx |
| Cilag-Hind Ltd. ... ... ... | xxii | Oriental Pharmaceutical Industries Ltd. ... | xxxiii |
| Cipla Ltd. ... ... ... | ii | Philips Electrical Co. (India) Ltd. ... | xvi,xxvi |
| Distillers Co. (Biochemicals) Ltd. ... | vi | Sarabhai Chemicals ... ... | xxviii |
| Dumex Ltd. ... ... ... | xix,xx | Scientific Publication Concern ... | xxxiii |
| East India Pharmaceutical Works Ltd. ... | xxiv | Smith Stanistreet & Co. Ltd. ... | xxxi |
| G. D. A. Chemicals Ltd. ... ... | xxxii | Standard Pharmaceutical Works Ltd. ... | iv |
| General Elec. Co. of India Ltd. ... | xxvii | Voltas Ltd. ... ... ... | v |
| Horlicks Ltd. ... ... ... | xviii | W. T. Suren & Co. Ltd. ... ... | xxxii |
| Imperial Chemical Industries (I) Ltd. ... | 2nd Cover | Zimmer & Co. ... ... ... | xxxiii |
| Indo-French Pharmaceutical Co. ... | xviii | | |



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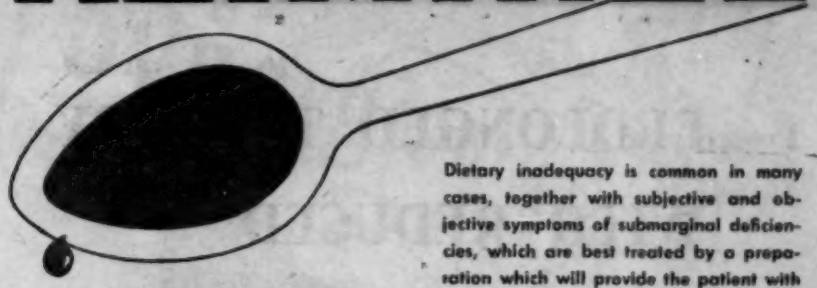

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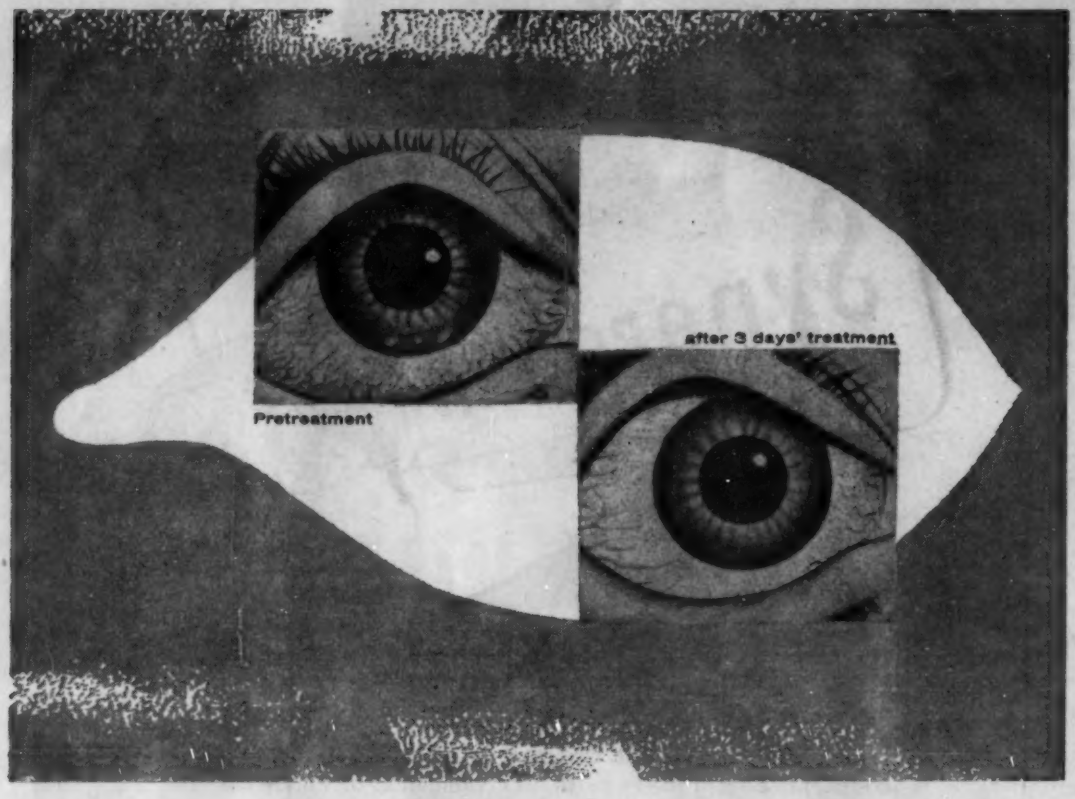


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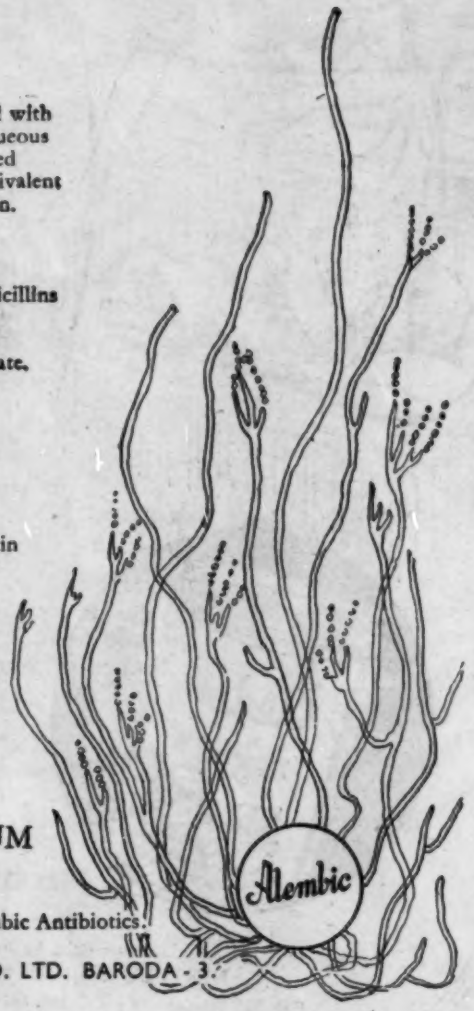


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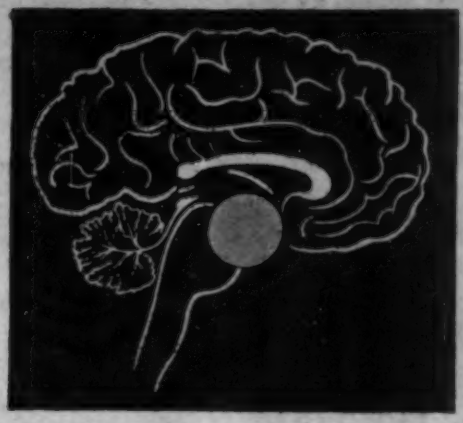

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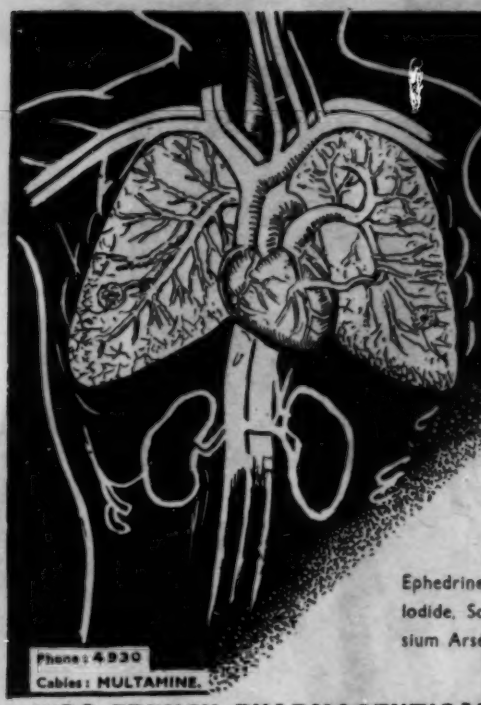

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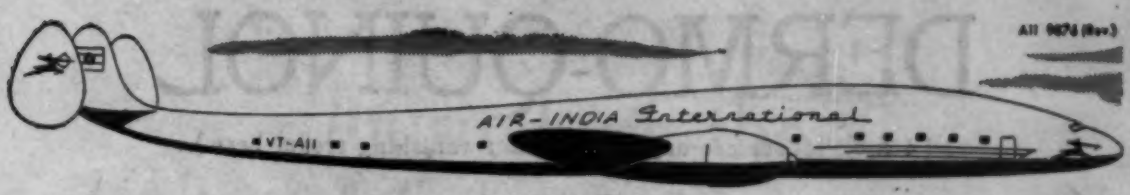


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**CALCUTTA—26.**

Journal of the
Indian Medical Association

Vol. 24. No. 4 CALCUTTA PUBLISHED TWICE A MONTH November 16, 1954

*ORIGINAL ARTICLES*

# PHAEOCHROMOCYTOMA

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Recent advances in pharmacology and the physiopathology of adrenal medullary secretions, and recent availability of drug tests for phaeochromocytoma, have made it possible and practicable to arrive at clinical diagnosis of phaeochromocytoma, and to effect cure by surgical removal of the tumour. A case of phaeochromocytoma preoperatively diagnosed clinically, treated with successful removal of the tumour resulting in relief of symptoms, and with the diagnosis confirmed by biopsy of the tumour is reported. Perhaps this is the first case of phaeochromocytoma recorded in India.

Phaeochromocytoma (also known as paraganglioma or chromaffinoma) is a tumour of chromaffin tissue, staining brown in chromic salt solutions. Majority of the tumours are situated in or around the adrenals, but in few cases they may be situated in any position from neck to pelvis in which chromaffin tissue is present during early life, e.g., organ of Zuckerkandl at aortic bifurcation thoracic ganglions or celiac ganglions. These tumours discharge a variable but always high amount of adrenaline and nor-adrenaline. This tumour is usually unilateral but few bilateral cases have been reported. From the pathological point of view these tumours are usually benign in nature but a few malignant ones have been reported.

Until 1949 it was thought that suprarenal medula secreted only adrenaline. Holton (1949), and Goldenberg *et al* (1949) showed that phaeochromocytomas contained both adrenaline and nor-adrenaline in varying ratios. Nor-adrenaline raises the systolic, the diastolic and the mean arterial pressure by peripheral arteriolar vasoconstriction. It has no effect on cardiac output or acceleration and slight or no effect on blood sugar level. On the other hand, adrenaline raises the systolic blood pressure by augmenting the cardiac output, but lowers the diastolic pressure by vasodilatation. Adrenaline raises the blood sugar, increases the basal oxygen consumption and produces sudorific action.

Phaeochromocytoma occurs equally in both sexes. Majority of reported cases have been between ages of 20 and 60 years, the youngest recorded age being 5 months and the oldest 72 years. The size of the tumour varies from 1 to 10 cm. in diameter. The tumours are extremely vascular.

Phaeochromocytoma is not so rare as it was formerly thought to be. About 300 cases have so far been described in the literature. The first description of the syndrome of paroxysmal hypertension in association with a chromaffin tumour was made by Labbe, Tinel and Doumer (1922) in France after the autopsy of their case. The first correct clinical diagnosis during life-time of a patient was made by Vaquez and Donzelot of France in 1926

and later proved by post-mortem. The first surgical cure was effected by Mayo in 1927 in Mayo Clinic. This was accidental. A woman was subjected to exploratory laparotomy where a retroperitoneal tumour was detected and removed thinking it to be malignant blastoma. Some years later examination of the tumour revealed that it was phaeochromocytoma. The honour of making the first pre-operative diagnosis during life-time and completely curing the patient by surgical removal of the tumour goes to Pincoffs (1928). Since then and specially in the last ten years increasing number of cases have been referred which were diagnosed clinically and cured permanently by operative removal of the tumour. Table 1 shows the present status, as regards pre-operative diagnosis.

TABLE 1—SHOWING INCIDENCE OF PRE-OPERATIVE DIAGNOSIS

| Year | Author | Cases in literature | Cases at autopsy | Cases at operation |
|---|---|---|---|---|
| 1938 | Mackenzie and McEachern .. | 82 | 76% | 24% |
| 1944 | Mackeith .. | 165 | 78% | 22% |
| 1949 | Smithwick *et al* | 270 | 67% | 33% |

## CLINICAL FEATURES

Clinical manifestations of phaeochromocytoma may fall in one of the following groups:

1. *Asymptomatic:* Phaeochromocytoma may be found incidentally at autopsy. In other cases it may turn out to be a cause of sudden death during anaesthesia or some minor surgical operation, either due to sudden discharge of large amount of adrenaline and nor-adrenaline or due to shock. It may be recognised at operation for some other condition.

2. *Paroxysmal adrenal sympathetic syndrome:* In cases with history of paroxysmal attacks of sympathetic stimulation, phaeochromocytoma would be thought of commonly. Sudden discharge of varying proportions of a mixture of adrenaline and nor-adrenaline would produce a multifaceted clinical picture. If adrenaline effect is dominant, there may be a sudden rise of blood pressure associated with other manifestations of sympathetic activity, e.g., palpitation, precordial pain, tachycardia, sweating, tremors, coldness of hands and feet, blanching of skin, nausea, vomiting, diarrhoea, pounding headache, hyperglycaemia and glycosuria and leucocytosis. There may be attacks of hypertensive encephalopathy or acute left ventricular failure. A prolonged paroxysm may be followed by a state of shock.

The paroxysmal attacks may be precipitated by postural change, physical exertion, hyperventilation, exposure to cold, abdominal massage or by emotion. The attacks are unpredictable in a large number of cases.

3. *Persistent and sustained hypertension:* It is important to realise that the classical sign of paroxysmal hypertension is seen only in a small number of cases. About 70 per cent of these cases have sustained hypertension with symptoms so similar to essential hypertension. In these cases the diagnosis may be suspected if a careful history reveals episodes of paroxysmal hypertension, association of excessive sweating, combination of hypertension and hyperglycaemia, or concurrence of hypertension and hypermetabolism. Postural hypotension and postural tachycardia may suggest the possibility. These cases may be labelled as those of essential hypertension. Smithwick *et al* (1950) reported 5 cases of phaeochromocytoma in 1000 hypertensives undergoing lumbosacral sympathectomy.

4. *Other manifestations:* In cases of generalised neurofibromatosis associated with either persistent or intermittent hypertension, phaeochromocytoma should be suspected. About 5 per cent of reported phaeochromocytomas have been associated with von Recklinghausen's disease.

It is reported that 10 per cent of patients with phaeochromocytoma have some neurocutaneous disorder, e.g., von Recklinghausen's disease, von Hippel-Lindau disease, tuberous sclerosis and encaphalotrigeminal angiomatosis; and that when evidence of such a disease in a hypertensive is available phaeochromocytoma should be suspected.

It may also present as a case of Addison's disease. This is the result of compression of the cortex of the suprarenal by medullary tumour. Hence features of Addison's disease in a case of hypertensive or *vice versâ* should arouse suspicion of phaeochromocytoma.

Its possibility should also be thought of if paroxysm of adrenal sympathetic syndrome is precipitated while palpating over renal area or while palpating a lump. It is of interest to note that about 14 per cent of all phaeochromocytomas are palpable.

Rarely the case may come for malignant tumour in abdomen.

## DIAGNOSIS

The disease is probably more frequent than was previously supposed. Many cases diagnosed during life-time have been reported in the last few years. This is because of additional methods of diagnosis which have been available. De Courcy and

De Courcy (1952) believe that 1000 deaths from phaeochromocytoma occur annually in U.S.A. In a clinically suspected case there are two main methods of confirming the diagnosis.

1. *X-ray evidence :* Radiography may be useful in location and in confirmation of phaeochromocytoma.

A plain x-ray may rarely show a soft tissue shadow in suprarenal area. Also displacement of renal shadow of either kidney may be suggestive of adrenal tumour.

Intravenous or retrograde pyelography may indicate alteration in the position or the shape of either kidney.

Perirenal insufflation might be helpful in some cases to locate the tumour. Some clinicians think it to be hazardous. Occasional fatality has been recorded. Laminography is also useful at times.

2. *Pharmacological tests :* Because of difficulty of clinical and radiological diagnosis, drug tests are extremely useful for confirming the diagnosis of phaeochromocytoma, though false positive and false negative responses may occur. No single test will give absolute evidence of phaeochromocytoma. Basically speaking the tests fall in four categories :

(*a*) Hormone estimation ;
(*b*) Provocative tests ;
(*c*) Adrenergic blocking agents ;
(*d*) Other tests.

In this paper only a mention of the available tests is made. The technique in detail is not described.

(*a*) *Hormone estimation*—The ideal tests would be estimation of adrenaline and nor-adrenaline in blood and urine. An increased blood level and an excessive urinary excretion would be highly suggestive of phaeochromocytoma. At present these tests are not practicable in all laboratories.

(*b*) *Provocative tests*—Here a hypertensive paroxysm is provocated by certain drugs like histamine. These tests can be employed in those patients whose history suggests a possibility of phaeochromocytoma but whose blood pressure at the time of testing is normal or slightly elevated. They are also useful postoperatively to exclude the possibility of multiple tumours. The disadvantage of these tests is that provocation of a paroxysm inflicts a strain upon the patient.

1. Histamine Tests : After rapid intravenous injection 0·025 to 0·05 mg. of histamine blood pressure readings are recorded at intervals of half a minute for five minutes, and every minute for ten minutes. The test is said to be positive if a greater increase in height of blood pressure is produced, than caused by standard cold pressor tests in the same patient. This test is not entirely specific and false positive and negative results have been recorded.

2. Tetra Ethyl Ammonium Bromide ('Etamon') Test : If rise in blood pressure in response to intravenous injection of 0·4 g. of tetraethylammonium bromide, exceeds the rise produced by cold pressor test, it is thought to be positive for phaeochromocytoma.

3. Methacholine (Mecholyl') Test : 10 mg. of mecholyl is injected subcutaneously. The test is positive, if blood pressure exceeds cold pressor test.

(*c*) *Adrenergic blocking agents*—In these tests a reduction of blood pressure is effected by means of sympathicolytic drugs specifically antagonist to hormones of the tumour. These tests would be useful in cases of sustained hypertension.

1. 'Dibenamine' Test : The test had a short and stormy career. It was found to be too inaccurate and too dangerous for routine use.

2. Piperoxan Benzodioxane Test : It is injected intravenously in a dosage of 0·25 mg. per kg. of body weight. It produces a depressor response to hypertension caused by the presence of either adrenaline or nor-adrenaline. The test is less accurate and more toxic than Regitine test. It is useful as a diagnostic tool in confirmation of equivocal Regitine test.

3. Phentolamine ('Regitine') Test : This test is the safest and the most reliable test of phaeochromocytoma. It is the testing agent of choice. 5 mg. of phentolamine is injected intravenously (or intramuscularly) and blood pressure readings are recorded every half a minute for five minutes and every one minute for ten minutes or more. The positive response is a prompt fall in blood pressure of more than 35 mm. Hg. systolic and 25 mm. Hg. diastolic.

False positive results may be avoided if sedatives and antihypertensive agents are discontinued the previous day. In presence of uraemia this test is unreliable.

Although phentolamine (Regitine) test appears to be superior to others, no one drug should be regarded as infallible and in border-line responses confirmation must be done by other tests.

(*d*) *Other tests*—

1. Cold-Pressor Test : Smithwick and his co-workers (1950) reported this simple test. This test is normal in a case of phaeochromocytoma in contrast to essential hypertension where a normal response is rare. Recently it is found to be of limited value because of its variable response. Besides it may occasionally precipitate a hypertensive crisis.

2. POSTURAL TEST: In cases of phaeochromocytoma there is a postural fall in blood pressure and postural tachycardia when the patient stands up from the lying down position.

3. MANIPULATION TEST: Gentle message in kidney areas may cause a diagnostic rise of blood pressure in a case of phaeochromocytoma but not in a case of essential hypertension. If this manoeuvre is undertaken, Regitine must be kept ready, for emergency.

### DIFFERENTIAL DIAGNOSIS

The symptom-complex produced by phaeochromocytoma may well be mistaken for a number of clinical entities. The common condition with which it is often confused is essential hypertension. The other conditions which may be mistakenly diagnosed for phaeochromocytoma are hyperthyroidism, diabetes mellitus, glomerulonephritis, eclampsia, psychoneurosis, neuro-circulatory asthenia, cases of diencephalic activity and abdominal emergency. On the contrary coarctation of the abdominal aorta and renal cyst are rarely misdiagnosed as phaeochromocytoma. A careful exploration of clinical features and pharmacological test help in differentiating these conditions.

### TREATMENT

Surgical removal of the tumour is the only available treatment at present. During anaesthesia and operative procedure two main complications are likely to occur. Firstly there may be a sharp rise in blood pressure due to sudden release in the circulation of large amounts of adrenaline and noradrenaline, leading to acute left ventricular failure. Secondly sudden withdrawal of these hormones may produce precipitous drop in blood pressure or sudden arrhythmia, leading to the state of shock. The rise in blood pressure can be combated by administration of adrenergic blocking agents, e.g., phentolamine, tolazoline hydrochloride, benzodioxane. The drop in blood pressure can be combated by continuous intravenous infusion of nor-adrenaline.

### CASE REPORT

A female (A. N.) aged 41 years was admitted into the hospital with complaints of paroxysmal attacks of palpitation accompanied by discomfort in the left lumbar region, sweating, giddiness, throbbing in the head and dyspnoea since last seven years. The attacks increased in number since the last one year. She also complained of headache, giddiness, breathlessness and disturbed sleep off and on in between the paroxysmal attacks.

On examination, she was found to be well-built. Her face showed congested appearance. Neck veins were engorged. Examination of the lungs showed rhonchi with prolonged expiration and crepitations from time to time. The left border of the heart showed enlargement. The aortic second sound was accentuated. Abdominal examination did not reveal anything abnormal. The blood pressure ranged between 155/95 to 200/115 mm. Hg. On examination during the paroxysmal attacks, it was found that blood pressure ranged between 180/110 to 282/130 mm. Hg. During such attacks there used to be tachycardia (90-124 per minute), and her skin used to be cold and clammy. Examination of heart and lungs at such attacks were found to be otherwise normal. On investigation, there was a moderate anaemia. Urine showed presence of albumin 0·7 per cent on admission which after a month cleared up. Fundoscopy showed III degree arteriosclerotic changes in both the eyes. B.M.R. was −4 per cent. Fasting blood sugar was 120 mg. per cent. During one of the attacks blood sugar was 94 mg. per cent. X-ray of the abdomen and descending pyelography did not reveal anything abnormal. E.C.G. showed left ventricular strain.

Cold pressor test showed a hyper-reactive type of response. Blood pressure increased by 40 mm. Hg. in 60 seconds and returned to base level after 12 minutes. Postural test showed a positive response. On standing up from lying down position there was a fall in blood pressure and rise in heart rate as shown in Tabie 2.

TABLE 2—SHOWING EFFECT OF CHANGE OF POSTURE ON BLOOD PRESSURE AND PULSE

| DATE | LYING | | SITTING | | STANDING | |
|---|---|---|---|---|---|---|
| | B.P. mm. Hg. | Pulse rate | B.P. mm. Hg. | Pulse rate | B.P. mm. Hg. | Pulse rate |
| 7/10 | 205/130 | 115 | 210/120 | 125 | 145/90 | 132 |
| 8/10 | 215/130 | 112 | 210/125 | 120 | 145/95 | 130 |

Regitine test was positive. 5 mg. of phentolamine was administered intravenously. The results are shown in Table 3.

TABLE 3—SHOWING RESULTS OF PHENTOLAMINE ('REGITINE') TEST

| | *Minutes after I.V. Phentolamine* | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time: | 0 | ½ | 1 | 2 | 15 | 60 | 120 | 300 |
| Blood pressure: in mm. Hg. ... | 180/110 | 120/70 | 110/70 | 122/72 | 130/80 | 138/88 | 140/95 | 170/118 |

Table 3 shows that a fall of systolic pressure by 70 mm. Hg. and diastolic by 40 mm. Hg. was obtained.

Some of the important features during the attacks and in between attacks are shown in Table 4.

TABLE 4

| Features | In between attacks | During the attack |
|---|---|---|
| Blood pressure | Max. 200/115<br>Min. 155/95 | 280/130<br>180/110 |
| Pulse | About 80 p.m. | About 120 p.m. |
| Sweating | Slight | Profuse |
| Palpitation | nil | Present |
| Skin | Warm | Cold, clammy |
| Headache | Occasional | Pounding headache |
| Blood sugar | 120 mg. % | 94 mg. % |
| E.C.G. | Left ventricular strain | Left ventricular strain |

Thus the diagnosis of phaeochromocytoma was made. The question about the site could not be settled. X-ray and intravenous pyelography were not indicative of any renal deformity or displacement. Peri-renal insufflation was not done because of its hazard. Since the patient stated that her attacks started with some funny sensation of discomfort in left lumbar area, it was decided to explore her left adrenal first. She was operated on 3rd November by Drs. K. G. Musif and M. K. Parikh. At operation, besides the usual preparations, nor-adrenaline (4 mg. in 1 pint of saline) and phentolamine were kept in readiness for emergency use. At first sodium pentothal was injected intravenously. She immediately went into a state of profound shock. Blood pressure could not be measured, pulse could not be felt, heart sounds could not be heard, and limbs were cold. Nor-adrenaline by intravenous drip had the spectacular effect of reviving the patient from shock within a few minutes. The anaesthesia was intratracheal ether. On operation the left suprarenal area showed a tumour of the size of a walnut. Uptil now the patient's blood pressure fluctuated between 220/170 and 165/130 mm. Hg. 1 mg. Regitine (phentolamine) was given intramuscularly when it tended to be very high. On shelling out the tumour the blood pressure again fell to imperceptible level. Nor-adrenaline by intravenous drip was started and maintained for a period of 36 hours after the operation was over. Since then the patient made uneventful recovery. During her post-operative stage in the hospital and her follow up for last three months, she has been completely free from all symptoms and her blood pressure has been maintained at about 116/80 mm. Hg. and pulse at about 88 per minute.

Macroscopic examination of the tumour showed that it was an oval, capsulated, well circumscribed nodular mass (Fig. 1, *vide* Plate) measuring 4 × 3 × 2 cm. It weighed 22 g. and was reddish brown in colour. At places yellowish bits of cortical tissue of the adrenal could be identified. Consistency was soft. The cut surface (Fig. 2, *vide* Plate) was moist and was bulging. It presented a variegated appearance because of the admixture of golden yellow colour, opaque yellow and dark red and dark brown areas. Specks of haemorrhages were seen at places, and in one such the haemorrhage of an appreciable size had occurred measuring 1·75×1·5 cm. in size giving rise to a small cystic space of irregular shape.

The microscopic appearance (Figs. 3 & 4, *vide* Plate) was typical of phaeochromocytoma. The tumour consisted of sheets of large polygonal and polyhedral cells with abundant cytoplasm. The latter in most of the cells was eosinophilic and granular. The nuclei were spherical and vesicular. Multinucleated cells were seen in some areas. At places areas of degenerating neoplastic cells and haemorrhages were evident. As the tumour mass was previously fixed in formalin saline, part of the material was treated with Kohn's solution (Rosenthal and Wintrobe), sections from which showed the positive reaction for chromaffin cells. In some sections normal looking medulla of the adrenal, separated by a fibrous capsule from the tumour mass, could be made out (Fig. 5, *vide* Plate).

*Comments on the Reported Case*—The case reported here shows a combined picture of persistent hypertension and paroxysmal hypertension. She used to have persistent moderate hypertension which used to shoot up paroxysmally with typical adrenosympathetic symptoms. These attacks used to last from a few minutes to a few hours. Although no factor could be established which provoked the attacks ; on certain occasions emotional upsets could be correlated with the attacks. The symptom-complex accompanied with paroxysmal hypertension was typical of adrenaline/noradrenaline liberation in blood, namely profuse sweating, tachycardia, cold clammy skin, headache, etc. These features in a case of hypertension, persistent or paroxysmal, are highly suggestive of phaeochromocytoma.

In some cases of phaeochromocytoma there occurs an unexplained rise of body temperature. B.M.R. is also found increased to about +20% in 57% of cases of phaeochromocytoma. However our case showed a normal body temperature and B.M.R. was −4%.

Yet another irregularity observed in the present case was absence of hyperglycaemia and glycosuria. In phaeochromocytoma nearly 65 per cent of cases show fasting blood sugar of 120 mg. per cent or more; and 36 per cent show glycosuria. This hyperglycaemia and glycosuria become evident, or more marked during a paroxysmal attack, due to excessive liberation of adrenaline. In the present case fasting blood sugar in absence of an attack was 120 mg. per cent and urine was free from glucose. Blood sugar during an attack was 94 mg. per cent and urine sample after such an attack was also clear. It is known that 4 per cent of cases of essential hypertension may show glycosuria.

The simple test of hypotension and tachycardia on postural change described by several authors has been well demonstrated in this case. This test is important because of its simplicity and safety. Only 3 per cent of the cases of essential hypertension show postural hypotension against 44 per cent of those of phaeochromocytoma. Similarly 15 per cent of the essential hypertension show a rise in pulse rate of 20 per minute on changing the

posture from lying down to standing while 55 per cent of phaeochromocytoma show it,—the positive test which does not clinch the diagnosis but strongly suggests for further investigation. These postural changes are more common in cases of phaeochromocytoma with persistent hypertension.

It was shown by Smithwick and his co-workers (*loc. cit.*)that pressor test is negative in case of phaeochromocytoma but in our case there was a rise of 40 mm. Hg. in blood pressure in 60 seconds, by immersion of hand in cold water.

In the present case Regitine test fulfilled the criterion of a positive test (namely a systolic fall of at least 35 mm. and a diastolic fall of at least 25 mm.).

The patient showed a systolic drop of 70 mm. Hg. and in diastolic fall of 40 mm. Hg. The fall usually lasts for about 15 minutes after which blood pressure begins to rise. In the present case it started rising after 15 minutes and reached the original level at the end of the fifth hour.

The location of tumour was difficult to establish in this case. There was no palpable tumour nor could the radiological examinations reveal any tumour. Perirenal insufflation was not attempted for the fear of its hazard. The only guiding feature was her complaints that every attack started with a sense of discomfort in the left lumbar region. Surgical exploration confirmed the site of the tumour.

The operations for phaeochromocytoma have lost much of their dangers due to advent of Regitine and nor-adrenaline. In these operations there is a risk of shock during anaesthesia, the danger of fatal paroxysm during manipulation of the tumour and the possibility of hypotension with collapse after removal of the tumour. The present case showed a severe and profound shock when sodium pentothal was injected but nor-adrenaline drip revived her condition spectacularly within a few minutes. During the operation blood pressure was taken every few minutes and it was maintained near the normal level by I.M. Regitine. When the tumour was handled there was a tendency for sudden hypertension but was checked by 1 c.c. I.M. Regitine. Blood pressure fell markedly after the tumour was removed and thereafter she was maintained mainly on nor-adrenaline drip. As blood pressure got stabilised the drip was made less frequent and abandoned after 36 hours. Thanks to these drugs that it was possible to maintain the blood pressure at more or less normal levels throughout the operation and in the post-operative period.


## Summary

1. A brief review of the tumour phaeochromocytoma is described with recent trends in the field of diagnosis of this rare condition.

2. A case of phaeochromocytoma is reported, in which the diagnosis was confirmed by operative removal of the tumour.



### Acknowledgment

Our thanks are due to our colleagues for their co-operation at various stages in the treatment of the case and in the preparation of the paper.


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# PANCREATIC CALCULI


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Pancreatic calculi were first described by Graaf in 1667. They were considered rare. Anderson (1953) states that the incidence is 1 in 1,500 to 2,000 autopsies. Edmondson *et al* (1950) reported 26 cases in a review of 26,000 consecutive autopsies from 1925-1948 and 10 cases in 3,000 autopsies from 1946-1948 giving an incidence of 1 in 1,000 in the earlier years and 1 in 300 in the later years. Very few cases of pancreatic calculosis have been reported in India. Shah (1941) reported 2 cases and stated that till 1938 only one case was reported in India which was by Kini (1938). Kothare (1945) in a review of 5,000 autopsies performed at the K. E. M. Hospital, Bombay, could find only one case of pancreatic calculosis.

## Material

The material available in the department of pathology of the Christian Medical College Hospital, Vellore, was analysed for a period of 11 years that is from 1943 to 1953 inclusive and 9 examples of pancreatic calculi were found. Three of these were surgical cases while the rest were discovered at autopsy. During this period a total of 19,756 biopsy examinations and 1,321 autopsies were performed. Thus in our series the incidence was 1 in 6,585 surgical cases and 1 in 220 autopsy

Fig. 1

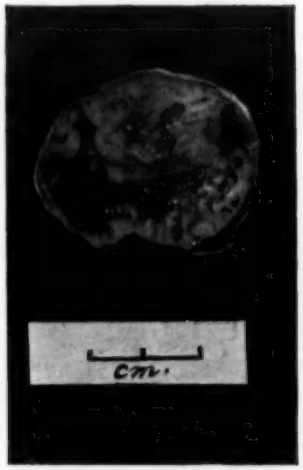


Fig. 2

Fig. 3

Fig. 4

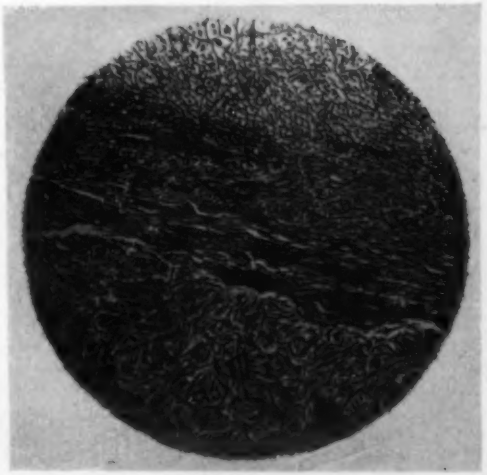

Fig. 5

Fig. 1—Roentgenogram showing multiple areas of calcification at the level of $L_1$ & $L_2$ vertebrae consistent with a diagnosis of pancreatic calculosis.

Fig. 2—Pancreas showing marked dilatation of the main pancreatic duct throughout the body and tail. There are several stones in the head, the largest measuring 3×1×1 cm.

Fig. 3—Photomicrograph showing intraductal calcific spots in the pancreas. There is much fibrosis, atrophy of the acini and autolytic change in the surrounding tissue. ×110.

Fig. 4—Photomicrograph showing squamous metaplasia in the wall of a pancreatic duct. Beyond this are inflammatory cells and fibrosis. ×110.

Fig. 5—Photomicrograph showing atrophy of acini and thickened nerves. ×110.

Fig. 6—Photomicrograph showing a dilated duct containing amorphous concretions with a concentric arrangement. ×110.

cases. This incidence in autopsy cases is higher than that reported by others.

### Case Reports

*Case 1*—Hindu, male, from Cochin, aged 30 years, with complaints of severe abdominal pain radiating to the back for 10 years and repeated attacks of haematemesis for 6 months. At laparotomy there were 2 small stones in the duct of Santorini which were removed. Following this the patient made an uneventful recovery.

*Case 2*—Muslim, male, from Coimbatore, aged 22 years, was admitted with colicky generalised abdominal pain and vomiting after food for a few years. An appendicectomy was performed in another hospital without any improvement. X-ray showed calcified masses resembling pancreatic calculi. Multiple stones were removed from the main pancreatic duct on 3-11-1951. The patient returned on 24-8-'53 with similar complaints of four months' duration but with the pain now radiating to the back. Pancreatic calculi were again seen by x-ray, removed at operation and the patient discharged well.

*Case 3*—Christian, male from Travancore, aged 63 years, had severe constant dull pain in the upper abdomen which was relieved only by sedation. Duration was not known. A firm mass was palpable and x-ray showed calcified areas in the region of the pancreas (Fig. 1, *vide* Plate). At operation several irregular calculi were found, and biopsy of the surrounding pancreatic tissue showed an associated adenocarcinoma. He was discharged in good condition.

*Case 4*—Hindu, male, aged 12 years, was admitted in an unconscious state and died the same day. At autopsy there was bilateral bronchopneumonia, fatty liver and several calculi so that the pancreas felt like a bag of stones. The ducts were dilated and filled with pus.

*Case 5*—Hindu, female, aged 18 years, complained of abdominal pain on and off for a few months. For one day she had severe abdominal pain, vomiting, constipation and anuria, and was brought in a state of shock. She was 6 months pregnant. At autopsy there were two stones at the distal end of the pancreatic duct. The pancreas was dark and haemorrhagic.

*Case 6*—Hindu, male, aged 60 years, was admitted with scanty micturition, oedema of face and lower extremities for two months, scabetic lesions on hands and feet for 2 years. He was known to be a diabetic and was on diet. His blood pressure was 200/105 and heart showed hypertrophy. Kahn was positive. At autopsy peritoneal and pericardial effusions, generalised atheromatosis and nephrosclerosis were observed. The pancreas showed many hard calculi in the head. Beyond this were dilated ducts filled with pus.

*Case 7*—Hindu, male, aged 30 years, was admitted with a history of pain round the umbilicus radiating to the chest coming on in attacks with associated vomiting. On examination the patient was found to be comatose, jaundiced with a palpable liver. He died on the same day and at autopsy there were two pints of thick foul smelling brown fluid in the peritoneal cavity. In the pancreas were several cavities, 1-2 cm. in diameter filled with pus. There was one large stone in the head 1×½ cm. The liver showed multiple intercommunicating abscesses in the left lobe.

*Case 8*—Hindu, male, aged 45 years, was sent over as an unclaimed body from another hospital with no history except that the patient had symptoms of dysentery. At autopsy the lung showed fibrocaseous tuberculosis with spread to intestines and lymph nodes. The liver showed a nutmeg appearance. The pancreas weighed 100 g. and numerous stones (18 in all) were felt throughout the body and tail. The largest was 3×1×1 cm. and the smallest ½ cm. in diameter (Fig. 2, *vide* Plate).

*Case 9*—Hindu, female, aged 3, admitted on 13-5-'53 with generalised oedema and irregular fever of 3 weeks' duration. Died on 31-5-'53. At autopsy there were two stones in the head of the pancreas. The larger measuring 5×3×3 mm. The pancreas was atrophic and ducts dilated and cystic. The liver showed gross fatty change.

### Discussion

*Age Incidence*—Edmondson *et al* (1949) state the average to be 53. The oldest was 83 and the youngest 25. Ackmann and Ross (1932) state the average age of 29 surgical cases as 40. Martin and Canseco (1947) had the youngest 1 year old and oldest 97. In Eliason and Welty's (1948) series the greater number were in the 4th and 5th decades. The youngest was 14 and oldest 72. In our series the youngest is 3 years and oldest 63, the others being 12, 18, 22, 30, 30, 45, 60.

*Sex Incidence*—Ackmann and Ross (1932) report a total of 24 men and 23 women. Martin and Canseco (1947) have noted that males were more affected. Edmondson *et al* (1949) found the incidence to be 31 males and 31 females. Eliason and Welty (1948) state that the frequency is male : female 3 or 4 : 1. In our series there were seven males and two females.

*Aetiology*—Several authors have mentioned stasis, infection and altered pH as important factors in the formation of pancreatic calculi. Edmondson (1950) observes that 2,000 to 3,000 cc. of pancreatic juice are produced daily and that it is possible to precipitate only 0·1 g. of calcium carbonate from 1,000 cc. of pancreatic juice. The fibrosis of the pancreas and infiltration by chronic inflammatory cells which we have seen in our sections may have been produced either by an obstruction followed by infection or by infection alone. So, it is not possible for us to make any statement about the aetiological factors responsible for formation of pancreatic calculi in our series.

*Site*—Edmondson *et al* (1950) state that the favoured site is the duct of Wirsung within 2 to

4 cm. of the ampulla of Vater, probably due to impaction rather than formation at the site. Eliason and Welty (1948) observe that they are more common in the head and decrease in frequency towards the tail. In our series one was in the duct of Wirsung, one in the duct of Santorini, 3 in the head, 2 generalised throughout the body and tail and in one the site was not stated.

*Number of stones*—Ackmann and Ross (1932) reviewed 29 surgical cases of whom 23 were multiple and 6 were single and 25 autopsy cases of which 24 were multiple and only 1 single. In our series 8 were multiple and only one single. Kipen (1950) reported 1 case in which there were multiple calculi following a non-penetrating abdominal injury. Bogle (1949) reports 1 case of multiple stones.

*Chemical Analysis*—Chemical analysis of only 1 stone was done in our series and this showed calcium carbonate, calcium phosphate and urate. Edmondson (1950) states that calcium carbonate formed the chief component of calculi in their series.

*Other observations*—Sanes *et al* (1950) reported 7 cases of pancreatic lithiasis with associated fatty change and cirrhosis of the liver. In our series, of the six autopsy cases in which the liver was examined, 3 showed fatty change but no cirrhosis. In the operated cases no liver biopsy was done. History of alcoholism associated with pancreatic calculi has been noted by Edmondson (1949, 1950), Bogle (1949) and by Martin and Canseco (1947). There was no history of alcoholism in our series. Associated diabetes was present in 6 out of 11 surgical cases in Martin and Canseco's (1947) series, and this had also been noted by Sanes *et al* (1950). In our series only one was known to be diabetic. Association of pancreatic calculi with carcinoma of the pancreas has been mentioned in the report by Haggard and Kirtley (1939), who quote 3 cases reported by Hartig in 1915, by Perman in 1926 and Quenu in 1927. In our series there was one case showing pancreatic calculosis associated with carcinoma.

*Symptoms*—Ackmann and Ross (1932) have noted the chief complaints as colicky epigastric pain, with radiation in a few cases to the chest and lumbar region. A few had nausea, vomiting, diarrhoea, steatorrhoea and loss of weight. In our series no history was available in two cases, while six cases gave a history of severe abdominal pain, coming on as attacks of colic or dull and constant. Two cases gave in addition a history of vomiting and in 1 case there was haematemesis. Pre-operative diagnosis by x-ray was made in two of our surgical cases.

*Microscopic findings*—All cases showed fibrosis and atrophy of the acini. Inflammatory cells were present in 3 cases. In one case there was intraductal calcific spots (Fig. 3, *vide* Plate). Squamous metaplasia in the ducts and several thickened nerves were seen in another case (Figs. 4 & 5, *vide* Plate). Intact islets were seen in only one case. Concretions with concentric arrangement lying in some of the dilated ducts were seen in one of the sections (Fig. 6, *vide* Plate).

## Summary

In a review of biopsy and postmortem material for 11 years (1943-'53) at the Christian Medical College Hospital, Vellore, there was a total of nine cases of pancreatic calculosis—3 surgical and 6 autopsy. There is thus a high incidence of 1 case in every 220 postmortems. The autopsy incidence is much higher than that reported by others. The available data on the cases have been analysed in detail.

### Acknowledgment

We are grateful to Dr. R. W. Gault, Professor of Pathology, for advice, to Mr. Sigamani for the photography, to Mr. Williams for help with the references from literature and to Miss Saraswathy for clerical work.

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# A FEW OBSERVATIONS ON THE NATURE AND AETIOLOGY OF ANAEMIAS

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Anaemia is one of the most common diseases in our country, and every physician comes across a good number of cases everyday. He has to face the problem of finding out the aetiology and correct therapy in every case. In this paper an attempt has been made to include the observations made on 100 cases of anaemia seen and investigated during the last two years at Sir J. J. Hospital, Bombay.

AETIOLOGY: Observations are made on aetiology, clinical findings and pathological types of the various cases under review. To decide the treatment in a particular case is often not very easy and one requires thorough clinical and laboratory data before he can select the proper and rational therapy in that particular case. With the introduction of absolute indices and bone marrow studies, the study of anaemia has become more precise than before. In this paper, attempts have been made to classify anaemias in one hundred cases on the above basis and select the proper therapy.

*Sex*—62 were males and 38 were females.

*Age*—Age of the patients varied from 10 years to 72 years. There were 16 cases between the age of 10-20, 38 cases between 21-30, 25 cases between 31-40, 11 cases between 41-50, 6 cases between 51-60, 2 cases between 61-70 years and 2 were above 70 years.

*Occupation*—35 patients were doing household work, 25 were unemployed for the last 3-4 months; 23 cases were carpenters, brokers, fuel coolies etc., 6 were of retired life, and 11 patients were either clerks, salesmen, cook etc.

*Socio-Economical Aspects and Diet of Patients*—The patients that were admitted in the wards mostly belonged to very poor class. The history regarding their social aspects and the diet were not accurately available, hence the effects of these factors cannot be evaluated here. A rough estimate of their dietery intake was done and from this it was found that majority of them had poor diet from the view of quantity and quality.

CLINICAL HISTORY:

(a) *Chief complaints on admission*—The incidence of these is tabulated (Table 1).

TABLE 1

| Complaints | No. of Cases |
|---|---|
| 1. General weakness ... ... | 78 |
| 2. Fatigue ... ... ... | 70 |
| 3. Loss of weight ... ... ... | 10 |
| 4. Stomatitis ... ... ... | 4 |
| 5. Dysphagia ... ... ... | 3 |
| 6. Loss of appetite ... ... ... | 52 |
| 7. Pain in the body ... ... | 60 |
| 8. Dyspnœa ... ... ... | 32 |
| 9. Giddiness ... ... ... | 34 |
| 10. Fever with rigor ... ... | 32 |
| 11. Sore throat ... ... ... | 3 |
| 12. Running from the nose ... ... | 7 |
| 13. Oedema ... ... ... | 45 |
| 14. Headache ... ... ... | 11 |
| 15. Pain in abdomen ... ... | 15 |

Table 1 shows that general weakness and sense of pain and exhaustion and fatigue were the most frequent complaints. In many patients, there were more than one complaint.

(b) *Past illness and history of probable causative factors*—These have been summarised in Table 2. In some cases there was history of more than one disease in the past.

TABLE 2

| Factor | No. of Cases |
|---|---|
| 1. History of having fever in the past ... | 27 |
| 2. Similar trouble in the past ... | 12 |
| 3. Bleeding history | |
| (a) Delivery ... ... ... | 6 |
| (b) Menorrhagia ... ... | 4 |
| (c) Piles ... ... ... | 12 |
| 4. Dysentery ... ... ... | 25 |
| 5. Chronic diarrhoea ... ... | 32 |
| 6. Syphilis ... ... ... | 12 |
| 7. Jaundice ... ... ... | — |
| 8. No history of any previous disease ... | 42 |

FINDINGS ON EXAMINATION :

(a) *Skin complexion*—The colour of the skin did not vary in all cases with the severity of the disease. In this series, in about 8 cases the skin colour was almost normal even though the R.B.C. count was about 2 million per c.mm. and haemoglobin value was about 2 g. per 100 c.c.

(b) *Nails*—Nails were pale in 81 cases: they were pale and flat in 21 cases. Koilonychia was present in 6 cases. In 6 cases the nails looked normal even though R.B.C. count was as low as 2 million per c.mm.

(c) *Pigmentation*—This was as follows:

| | |
|---|---|
| Pigmentation of the skin alone .. | 28 cases. |
| Pigmentation of the mucous membrane .. .. .. | 14 cases. |
| Pigmentation of the skin and the mucous membrane .. .. | 12 cases. |

On the skin pigmentation was most marked (brownish black), on the dorsum of feet, hands. Pigmentation of the mucous membrane was found mostly on lips, tongue and palate.

(d) *Oedema*—Oedema of the face and/or feet was found in 45 cases. In all these cases, the renal and cardiac causes were excluded. Oedema was possibly due to hypoproteinaemia.

(e) *Tongue*—39 patients complained of sore tongue. Two cases had a bald tongue ; one case had geographical tongue ; partial or complete atrophy of papillae was observed in about 16 cases.

(*f*) *Alimentary system*—Symptoms referable to this system such as diarrhoea, dysphagia, glossitis, anorexia, have been described (Table 1).

(g) *Cardiovascular system*—All the cases were critically examined for the presence of haemic murmurs: they were examined at all the four places. The incidence of haemic murmurs in relation to the severity of the R.B.C. count was determined. It was observed that all severe cases did not manifest a haemic murmur and secondly, a haemic murmur was often present even with moderate degree of anaemia. It was best heard either at pulmonary area or at mitral area. It was observed that no murmur was heard in 2 cases with severe anaemia, and in one case of mild type murmur was heard.

(h) *Central nervous system*—Not a single case in this series showed any symptom or sign of degeneration of the cord.

CLASSIFICATION : At the end of the clinical examination, the probable aetiological factors were determined. All these cases were classified under three chief groups:

| | |
|---|---|
| 1. Dyshaemopoietic .. .. | 72 cases. |
| 2. Haemorrhagic .. .. | 22 cases. |
| 3. Haemolytic .. .. .. | 6 cases. |

HAEMATOLOGICAL FINDINGS :

(a) *Red blood cell count*—The count was determined as usual by Naubers' chamber. 50 cases had count below 2 million per c.mm.; 48 cases had between 2-4 million and 2 cases had between 4-5 million.

(b) *Haemoglobin*—Haemoglobin values were determined by Sahli's method. 63 cases had haemoglobin below 6 g. 36 had between 6-12 g. and 1 case had between 12-15 g.

*Mean corpuscular volume* (M.C.V.)—M.C.V. determination showed that 35 per cent of cases were microcytic ; 5 per cent were normocytic and 60 per cent of cases were macrocytic. M.C.V. between 80 to 95 c.$\mu$ is taken as normal.

*Mean corpuscular haemoglobin* (M.C.H.)—27 to 32 $\gamma\gamma$ is taken as normal. 59 cases had below 27 $\gamma\gamma$, 36 cases had normal range. 5 cases had above 32 $\gamma\gamma$.

*Mean corpuscular haemoglobin concentration* (M.C.H.C.)—This index is more important in determining the necessity of iron in therapy. The range of 32 to 38 per cent is taken as normal and these cases are classified as normosaturation. 92 cases showed hyposaturation ; 8 showed normosaturation.

At the end of all these indices, these cases were grouped, taking all 3 indices in consideration. It has often been a great confusion in classifying these anaemias on the basis of these various indices as different people take different indices for chromicity. Classifying anaemias on chromicity of R.B.C. is decided by some with M.C.H.C. If we take this saturation index as chromicity then the term hyperchromic is misleading as it implies oversaturation which cannot occur by physical laws. R.B.C. cannot be oversaturated with haemoglobin. If M.C.V. and M.C.H. are taken into account when classifying then one would not have the correct idea about the saturation of iron in blood as it can happen that macrocytic hyperchromic anaemia can have hyposaturation and this requires additional iron therapy. So it is advisable to classify anaemias taking all these 3 indices together to get the correct view of these cases. No two indices taken together give us the correct picture of the deficit. In this series, classification has been made taking all these 3 indices into consideration and

all the cases are classified as shown in Table 3 indicating alongside the therapy required :

TABLE 3—SHOWING CLASSIFICATION OF ANAEMIAS ON INDICES

| No. | Type of anaemia | No. of cases | Therapy indicated |
|---|---|---|---|
| 1. | Normocytic normochromic normosaturation type | 1 | Liver or iron not indicated |
| 2. | Normocytic hypochromic hyposaturation type | 4 | Iron |
| 3. | Microcytic hypochromic normosaturation type | 5 | Iron may be useful |
| 4. | Microcytic hypochromic hyposaturation type | 30 | Iron |
| 5. | Macrocytic hyperchromic normosaturation type | 2 | Liver |
| 6. | Macrocytic hyperchromic hyposaturation type | 3 | Liver with iron |
| 7. | Macrocytic normochromic hyposaturation type | 35 | Liver with iron |
| 8. | Macrocytic hypochromic hyposaturation type | 20 | Liver with iron |
| | Total | 100 | |

*N.B.*—Liver is meant for P.A. factor. So either liver or vitamin $B_{12}$ is indicated wherever liver is mentioned.

OTHER INVESTIGATIONS :

(a) *Van den Bergh reaction*—This was done in 82 cases. It was negative in 42, delayed direct positive in 12 and indirect positive in 28 cases.

(b) *Icterus index*—Icterus index was done in 82 cases. It was up to 5 units in 40 cases ; between 5-10 units in 27 cases, between 11 and 15 in 12 cases and between 15 and 20 units in 3 cases.

(c) *Blood Kahn*—It was done in all the 100 cases. It was positive in 23 per cent of cases, in some of these cases Menicke's rapid test was performed.

(d) *Stool examination*—Stool examination was done in all the cases. It showed ova of ankylostoma duodenale in 10 cases and ova of round worm in 4 cases. Ova of whip worm in 1 case, cysts of *Entamoeba histolytica* in 1 case while in the rest nothing abnormal was detected.

(e) *Gastric analysis*—This was done only in 75 cases ; the incidence is as follows :

(i) Complete achlorhydria—12 cases. Histamine was given in two cases ; one of these cases was histamine-fast achlorhydria.

(ii) Hypochlorhydria was found in 34 cases.

(iii) Normal range curve was found in 29 cases.

(f) *Bone marrow findings*—Either sternal marrow or lumbar spine marrow examination was performed in most of the cases. In one case iliac crest marrow was examined. All the cases in the series were grouped as follows according to the type of myelogram :

I. Normoblastic type : i.e., cases which did not show any megaloblast in myelogram were included in this group. This was divided as follows :

(a) Normoplastic normoblastic : i.e., normoblasts between 10-25 per cent of total nucleated cells.

(b) Hypoplastic normoblastic : i.e., normoblasts between 4-10 per cent.

(c) Hyperplastic normoblastic : Normoblasts more than 25 per cent.

(d) Aplastic type : Bone marrow showing hardly 3-4 per cent of normoblasts along with other features.

II. Megaloblastic : showing megaloblasts in myelogram.

The incidence is detailed in Table 4.

TABLE 4

| Type of bone marrow reaction | No. of cases |
|---|---|
| 1. Normoplastic normoblastic ... | 46 |
| 2. Hypoplastic normoblastic ... | 28 |
| 3. Hyperplastic normoblastic ... | 14 |
| 4. Megaloblastic ... ... | 1 |
| 5. Bone marrow not done ... | 11 |
| Total | 100 |

Out of 60 cases of macrocytic anaemia, 31 cases had normoplastic normoblastic marrow picture ; 1 had megaloblastic picture and 23 cases had hypoplastic normoblastic reaction and 5 cases had hyperplastic normoblastic bone marrow picture. This is quite contrary to what we expect in most of the macrocytic anaemias. In some cases, there was no history of any specific treatment. So it is difficult to explain these findings.

The incidence of such normoblastic bone marrow in macrocytic anaemias has been reported by Jhatakia *et al* (1948). In the series of 76 cases of macrocytic anaemia, 50 cases showed normoblastic bone marrow reaction. Since then, such non-megaloblastic macrocytic anaemias have been reported (Darb, 1948). The incidence of non-megaloblastic macrocytic anaemia in this series is very high. It is possible that this may be due to associated iron deficit as 97 per cent of cases in this series were requiring iron alone or iron and liver as therapy. Most of the macrocytic anaemias in this series showed associated iron deficit from

the findings of indices. This has been shown in tabular form. So this bone marrow picture and the findings of various absolute indices show that there exists a type of macrocytic anaemia with non-megaloblastic bone marrow reaction. The exact mechanism and pathogenesis of such findings are not clear to us. So in tropical macrocytic anaemias, we have got two types of bone marrow reaction ; one megaloblastic and the other non-megaloblastic and both of them respond to liver and allied drugs. Further work might throw some light to find out the factors responsible in producing this difference in these two types of bone marrow reaction. At present, it is difficult to explain these findings, as many of the patients with such myelogram had no treatment prior to admission. Difficulties in differentiating megaloblasts from normoblasts are often many and it might account for few cases. But many cases showed clear-cut normoblastic reaction.

(g) *Plasma proteins*: This estimation was done in 86 cases. The incidence of oedema in relation to the range of total proteins is tabulated (Table 5).

TABLE 5—SHOWING THE RELATION OF TOTAL PLASMA PROTEIN TO THE INCIDENCE OF OEDEMA

| Total plasma protein in g. | No. of cases | No. of cases with oedema | No. of cases without oedema |
|---|---|---|---|
| 0-3 g. | 21 | 16 | 5 |
| 3-5 „ | 31 | 18 | 13 |
| 5-7 „ | 33 | 10 | 23 |
| Over 7 „ | 1 | 1 | — |
| Total | 86 | 45 | 41 |

It will be seen from Table 5 that out of 52 cases who had plasma protein level below 5 g., 34 cases showed oedema, while 18 cases did not show any clinical oedema. There were 7 cases where the albumin value was below 2 g. All the 7 cases showed oedema. Out of 43 cases who had albumin value between 2-4 g., 38 cases showed oedema. Thus all the cases of hypoproteinaemia (total proteins below 5 g. per cent) viz., 52 cases did not show clinical oedema (only 34 cases showed the oedema). Similarly out of 43 cases who had albumin value below 4 g. all did not show oedema. This suggests that oedema formation is not related only to blood protein levels, but in addition there are other factors concerned so far as oedema in anaemia is concerned.

## CONCLUSIONS

It has been observed from this series that 72 per cent of cases belong to nutritional defects. 10 per cent were due to ancylostomiasis while the rest were either due to haemolysis or open haemorrhage. From the indices, 60 cases were found to be of macrocytic type, while about 35 cases were of microcytic type. No case of definite pernicious anaemia was found in this series. In spite of majority of cases of macrocytic anaemia, bone marrow study does not reveal megaloblastic reaction in most of them. This cannot be explained satisfactorily as many of the cases had no treatment prior to admission. Now this observation is similar to what one of us (K.U.J.) had observed in his first series of 152 cases published in 1948. It is possible that we are getting this sort of group of cases which might have normoblastic reaction. It was also observed in this series that blood plasma proteins were below 5 g. in 52 cases. This sort of hypoproteinemia has got some correlation with this type of anaemia. All these factors suggest that all the nutritional macrocytic anaemias are not due to one common factor.

## SUMMARY

An analysis of 100 cases of anaemia is given with reference to clinical aetiology, pathological findings and biochemical data.

Majority belong to some nutritional defects. 72 cases belong to dyshaemopoietic type ; 60 cases belong to macrocytic variety.

For perfect classification, it is stressed that all the 3 indices should be taken into consideration.

Various biochemical and other findings are correlated with clinical observations.

## ACKNOWLEDGMENT

We thank Dr. A. Karnally, Chief of our Unit, and the Superintendent, Sir J. J. Group of Hospitals, Bombay, for their kind permission to publish this work.

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*REFRESHER COURSE*

# ESSENTIAL HYPERTENSION

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## DEFINITION

The term 'essential hypertension' is used to refer to a persistent elevation of systolic blood pressure above 150 mm. of Hg. and diastolic blood pressure above 100 mm. of Hg. in the absence of any aetiological factor.

## HISTORICAL

Human arterial hypertension was suspected by many physicians since the time of Richard Bright (1827). The present understanding of essential hypertension began around 1900 when Clifford Albutt and later Hooker separated cases of arterial hypertension from those that had renal involvement. Though clinicians prior to Albutt and Hooker and even some of their contemporaries such as Mohemed and Von Basch came close to the modern concept of essential hypertension they persisted in the belief that nephritis was necessarily the end result of this essential hypertension. Albutt, however, clearly described in detail with extensive observations during the course of many years on patients with essential hypertension and clearly emphasized that these people necessarily need not develop renal disease and most commonly they die of some cerebral vascular accident. Albutt applied the term 'hyperpiesis' to these naturally discovered cases and the term remains current in England even now. The term 'essential hypertension' is an American term which is derived from the German 'Essentiale hypertonie' which was originally used by Frank.

Volhard and Fahr (1914) were the first to distinguish the malignant phase and pointed out that the first sign of the onset of this condition is the appearance of albuminuric retinitis (hypertensive periretinitis) characterised by bilateral papilloedema and soft exudates and star figure. Fahr (1919) showed that this distinctive pathological feature of the malignant phase is arteriolar necrosis occurring most frequently in kidney and also in other sites.

## AETIOLOGY

As far back as 1923, Hardt had first demonstrated in rabbits and dogs that persistent hypertension can be maintained for years by cutting the depressor and sensory nerves which exist around the aorta and carotid sinuses. It has also been shown that this type of hypertension can be prevented or cured by total sympathectomy. It is now well known that the aortic and carotid sinus nerves are not only the means of blood pressure regulation but are also the reflector moderator nerves of the systemic arterial pressure. Reflex regulation of blood pressure occurs by the action of arterial pressure itself on receptors located in the vascular wall of the sino-aortic area. Experiments have shown that arterial pressure does not act on the sino-aortic receptors directly but it acts indirectly by acting on the wall of the arteries where the sino-aortic receptors are located. These experimental observations suggest that the tone and tension and distensibility of the arterial wall plays a great role in the mechanism of reflex regulation of arterial blood pressure (Heymans, 1954).

Goldblatt (1934) produced hypertension experimentally by partial occlusion of the renal artery. He demonstrated pressor substances in the clamped kidney and made many attempts to discover an antipressor substance to reverse hypertension. The role of numerous humoral substances in hypertension continues to hold the field. The pressor amines that are most often referred to are renin, angiotonin, feranticin, vaso-excitor material (VEM) and continuous research is being made to find out substances to counteract these. Volhard (1939) emphasized two important factors in the aetiology of hypertension—age and inheritance. It is likely to be more common in women than in men. Not uncommonly the conditions peculiar to women such as toxaemias of pregnancy, and endocrine hypertension of menopause stabilise what has been previously a labile hypertension. Though the condition may occur at all ages, it is rarely encountered in the juvenile and the adolescent. But when it occurs at this stage, there has been a strong family predilection. The most vulnerable age period is 40-50 years. Many reports emphasise that it occurs in more than one member of a family though such evidence is fragmentary. White (1923) made a detailed study of the factors—chemical and others—which are considered significant in the aetiology of hypertension and found evidence in favour of inheritance. In the aetiology of essential hypertention, age and inheritance, no doubt account for a part but not all.

The role of environment remains to be defined. Some authorities maintain that the psychosomatic factors play a big part in the causation of the disease and point out that emotional changes are associated with marked changes in the blood pressure in patients with hypertension compared with normal controls. It would appear that such a rise of blood pressure is due to constriction of the

arterioles throughout the body and the simplest explanation that is given for this is that the impulses from the cortex pass on to the centres of emotion and the vasomotor centre and then through the somatic nerves to the end organs in the arterioles. Severance of the somatic nerves by therapeutic sympathectomy results in a dramatic and prolonged drop of blood pressure to normal or near normal and this is held out as proof for the hypothesis. The effect of sedatives and emotional and physical rest achieve a good therapeutic effect on hypertension which is further held out as additional evidence for this psychosomatic aetiology of essential hypertension. Further it has been noticed that the personality and emotional make up of the hypertensive patients are of a special type and are usually apparent from his early life, long before the hypertension becomes established. In such cases it is seen that the hypertension is labile in the initial stages and with increasing stress and strain of life it becomes permanent.

The most recent contribution is that of Henry Seale from the Department of Experimental Medicine of Montreal University with the postulation of the General Adaptation Syndrome (GAS), which integrates psychological endocrine and chemical aspects of human existence. It is a very attractive hypothesis which awaits acceptance.

### Signs and Symptoms of Hypertension

1. *Asymptomatic type.*—Essential hypertension in its benign form is often discovered in the course of routine examination and when the patient himself does not complain of any symptoms it is a matter of serious responsibility for the medical attendant to reveal the condition to the unsuspecting individual. In fact an indiscrete doctor, and an overanxious patient under the influence of the numerous articles that occur in the popular press may be responsible in converting an asymptomatic individual into an invalid. Cases are on record in the experience of clinicians, of person particularly in the educated strata of society, in whose family a genuine case of hypertension had occurred and the matter began to be discussed freely by the family and the medical attendant and then one or the other of the younger members of the family become anxious and in due course probably a hyperpietic.

2. *Fluctuant type.*—This category represents a large proportion of early cases of essential hypertension that usually come to the attention of the physician predominantly with transient cardiac or respiratory symptoms in the form of nocturnal paroxysmal dyspnoea, which is often mistaken for bronchial asthma. It is at this stage that the patient requires a careful scrutiny and a reorientation of his habits and life. By this means a static hypertension may be postponed to a considerable extent.

3. *Symptomatic group.*—An early symptom and most striking one of essential hypertension is occipital headache on waking. The mechanism of this is not understood. Another early symptom is vertigo. Palpitation, dyspnoea on exertion, nocturnal dyspnoea, are all symptoms which indicate that ventricular strain is beginning to express itself. It is at this stage that the organic changes in the cardiovascular system may make their appearance.

4. *Stage of complications.*—Essential hypertension may also come to one's notice for the first time in the form of its well known complications. Left ventricular failure characterised by paroxysmal nocturnal dyspnoea, right heart failure or congestive heart failure manifesting itself with its well known signs and symptoms of dyspnoea on exertion, anorexia, cough, oliguria and oedema in the dependent parts or as a combined heart failure. It may also come to one's notice as a cerebral vascular accident either as thrombosis or haemorrhage. An attack of coronary thrombosis may also be the first manifestation of hypertension though coronary thrombosis may not always be due to hypertension. Signs and symptoms pertaining to renal failure in the form of various manifestations of uraemia is yet another phase usually of the later manifestation of essential hypertension.

5. *Hypertensive encephalopathy.*—This is another well known and common manifestation of essential hypertension. The term was suggested by Openheimer and Fishberg (1928). This is a syndrome of varied manifestations ranging from the subjective symptom of vertigo to generalised convulsions, ending in coma. According to some authorities these cerebral disturbances never occur until the systolic pressure has reached or exceeded the level of 200 mm. of mercury (Openheimer and Fishberg, 1928; MacAlpine 1933). Usually these are heralded by a steep rise in the blood pressure and the attack which may be sudden may likewise be brief in duration. Reduction of blood pressure gives prompt relief.

6. *Malignant hypertension.*—Malignant hypertension may start by itself primarily or may superimpose on essential or on secondary hypertension. Recent studies by Byrom (1954) indicate that the essential pathology in this condition is arteriolar necrosis due to local circulatory disturbances. It would appear that the physical strain of extremely high blood pressure produces spasm of the terminal vessels resulting in arteriolar necrosis. The spasm, depending on its intensity, duration and extent,

causes anoxia, anaemia or asphyxia (1) of the capillary endothelium causing increased permeability and focal oedema, (2) of the organ or tissue concerned causing local or general disturbance of function and produce local infarction and (3) of the arterial wall, causing, if sufficiently intense, focal arteriolar necrosis with or without rupture of the wall or occlusion of the lumen.

The signs and symptoms of malignant hypertension depend therefore on the intensity and the rapidity with which they occur and on the organ or site of the vessels which they involve. Retinal manifestations are predominant when the retinal vessels are involved; cerebral symptoms predominate in the form of hypertensive encephalopathy, extensive thrombosis or cerebral haemorrhage, when the cerebral vessels are involved. Renal symptoms predominate when the kidney is the site of involvement. Cardiac symptoms are common in the form of cardiac failure particularly when the condition is superimposed on a previously existing hypertension.

### Course and Prognosis

Transient hypertension in young people probably represents the early sign of hypertensive predilection. Hypertension appearing after 55 years is associated with renal arterial sclerosis in 32 per cent as compared with 72 per cent when hypertension appears before the age of 55 and suggests that the latter may be a different manifestation of the disease. Vascular disease when manifested by cardiac enlargement, E.C.G. abnormalities, failure of renal function or encephalopathy is of a serious prognostic sign. Systolic and diastolic blood pressure levels, sex, and retinopathy are also important but the rate of progression, of the pathological changes is the most important of all. Overweight in the presence of hypertensive vascular disease is prognostically bad. Regression of E.C.G. abnormalities which may occur with weight loss is not a reliable indication of improvement of hypertensive disease. However, regression of papilloedema and severe retinopathy is of a favourable prognostic significance. This may occur spontaneously or as the result of treatment.

The problem of assessing prognosis of hypertension has become specially important since the introduction of effective medical and surgical means of lowering of blood pressure. Palmer and Muench have lately published a careful follow up 453 cases which they observed for the last 7 years. The patients were classified into 4 grades.

Grade I with very slight or no organic changes in the heart, kidneys, or brain detectable by ordinary examination.

Grade II with definite or pronounced change but no functional impairment.

Grade III same as Grade II with functional impairment.

Grade IV with papilloedema as well.

All the patients were strictly treated on conventional lines. After 10 years or more, 64 per cent of grade I, 42 per cent of grade II, 11 per cent of grade III and 4 per cent of grade IV were found to be still alive. From this analysis it would appear that the relative risk of death is greatest in young persons and decreases rapidly with age. Women live longer than men and in them the disease seems to run a milder and longer course.

Duration of the disease, making allowances for simultaneous ageing, seems to have little effect on mortality. There is a tendency for the expectation of life to decrease gradually from grade I to grade III which indicates that patients gradually deteriorate from one grade to the next. But a considerable proportion may remain throughout life in their original grade.

Leishman (1953) suggests that there are two forms of essential hypertension. Some progress very slowly and others have an accelerated progress. The disease seems to take one or the other of those forms from the very beginning. If the rate of rise is very slow very high pressures will be well tolerated and the outlook will be favourable. Such a situation occurs in elderly patients. A very high pressure occurring in a young person must mean that the rate of rise has become relatively rapid and therefore prognosis is not good. Leishman believes that when in a young or middle aged person at rest, a diastolic pressure of about 130 mm. Hg. is reached the disease will progress rapidly.

### Treatment

While undertaking treatment of a case of hypertension a thorough investigation should in the first place be made to exclude all secondary causes of hypertension. Conditions like phaeochromocytoma, congenital abnormalities of kidneys, including polycystic kidney, pyelonephritis, and coarctation of the aorta, should be carefully looked for as they require a different orientation altogether in respect of their treatment.

In the case of essential hypertension when it is still labile a reorientation in respect of the daily routine of the individual and emotional status may go a long way in postponing the stabilisation of the hypertension. When a young man with a moderately raised blood pressure who has not yet showed serious damage to the vital organs comes under one's care it would appear a wise course to observe the patient for some time and note the

range if any of his blood pressure to elucidate whether it is taking a slow or an accelerated course. In this the danger of inducing the onset by the frequent use of the sphygmomanometer must obviously be borne in mind. All cases of hypertension when they come with mild initial symptoms if they are hospitalised and provided with sufficient physical, mental rest, will settle down. When the blood pressure is high, such enforced rest alone may ward off cerebral vascular and other accidents which may become imminent if the patient is allowed to continue his normal routine of life. But it is unfortunate that patients with essential hypertension are usually of the optimistic go-ahead type with the result that it becomes difficult to keep them down in a lower gear of activity and complications that can be easily avoided are often courted by the patient himself.

Medical treatment of essential hypertension may be classified under the heads: drug therapy, dietary treatment and treatment of complications.

DRUG THERAPY: It is of utmost importance to achieve physical and mental rest and the administration of sedatives is therefore of great importance. Under this category come the age old bromides and recent barbiturates.

*Hexamethonium Bromide*—This has been given a long-term clinical trial all the world over and has been found to alleviate signs and symptoms of essential hypertension especially in severe cases entering on the malignant phase. Headache, breathlessness, and dyspnoea are usually lessened or relieved almost at once. Pulmonary oedema is relieved, cerebral oedema and vomiting arrested; enlargement of heart may regress; papilloedema diminishes; retinal damage if it occurs may be repaired. Hexamethonium passes through the placental circulation fairly rapidly without any ill-effects on the foetus so that pregnancy is no contraindication. It is highly useful in toxaemias of pregnancy and in cases of eclampsia where the termination of pregnancy is not called for and the life of the baby is assured. First, its response varies considerably with the neurogenic element of hypertension and so it becomes practically difficult to predict the dosage that may be effective from case to case. Secondly, when it is given orally, there may be great variations in its absorption varying from 2 to 30 per cent—patients with low sodium diet being more sensitive than others. Thirdly, as treatment proceeds the patient may acquire a gradual tolerance so that he may be able to stand as much as a tenfold dosage. This increased tolerance is lost fairly rapidly when the treatment is suspended. Fourthly there are other unpleasant side effects due to the involvement of the other autonomic ganglia, e.g. paralysis of accommodation, and the patient develops sudden blurring of vision, constipation, and/or diarrhoea, paralytic ileus, urinary retention, nausea and anorexia. These may be counteracted by giving parasympathetic stimulants like carbachol or prostigmine which in their turn may give rise to intestinal spasm or diarrhoea. To obtain a therapeutic effect by the oral administration of the drug at least 1-2 g. daily should be given and there is always the danger of bromism as well. Subcutaneous administration produces a fairly constant and predictable fall of blood pressure lasting 2 to 5 hours. This means that at least 3 injections should be given daily and this may be irksome to most patients. 75 mg. is an adequate dosage for 24 hours and does not produce bromism. Douthwaite (1954) claims to have used hexamethonium retard whose action lasts 5 hours so that only two injections need be given during 24 hours.

*Varatrum Derivatives* have a central neurogenic vasodilator effect. They are effective by mouth and parenterally. But unfortunately the hypotensive and emetic actions of veratrum have a narrow margin and are inseparable and there is also evidence of myocardial ischaemia being induced as a result of the profound hypotensive response (Lorenzo). Kauntze and Trounce (1951) using a preparation (Veriloid) of uniform potency showed that the drug is of value only in about 30 per cent while in the remainder the toxic effects, notably vomiting, preclude its use.

*Rauwolfia Serpentina*—It is confirmed that the alkaloids of *Rauwolfia serpentina* have a definite hypotensive action in addition to their sedative action and it takes nearly 4 to 5 days to several weeks to obtain its maximal effects. It is therefore not a drug which will produce expeditious results. It is useful in anxiety neurosis and in patients with labile hypertension. It has no serious side effects. But nasal congestion, excessive drowsiness, lassitude, anorexia, and diarrhoea and increase in weight are some of its disadvantages. The best use of serpentina is in combination with other hypotensive drugs.

In conclusion it may be said that the best therapeutic results can be achieved by combining the rapid acting hypotensive drugs with the slowly acting Serpentina alkaloids. A combination of two rapidly acting hypotensive drugs is potentially dangerous.

*Thiocyanates* need only be mentioned to state that on account of their toxicity and inconsistency they no longer hold any place in the field of therapy.

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*Complications*—The treatment of complications deserves to be dealt with in a separate article. It is however to be remembered that the occurrence of complications can be prevented by warding off the high ranges of blood pressure by rest, sedatives and the judicious use of hypotensive drugs. It is important to be aware that the various manifestations of hypertension are reversible if suitable and effective therapy is undertaken in the early phases of the disease.

## PLEURISY

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Pleurisy stands for inflammation of the pleura. This inflammation may be the result of spread of the disease from neighbouring organs—as in pneumonia, lung abscess, pulmonary infarction, liver abscess, subphrenic abscess or less commonly part of an active generalised disease like septicaemia.

As contrasted with these secondary types of pleurisies, there is a large number of cases where the inflammation of the pleura is not explained by underlying lung disease or an active generalised disease. In these cases the pleurisy has been called primary pleurisy and this is the type we understand when we talk of pleurisy as such and the type that will be described hereafter. We know that most, if not all, cases of this type of pleurisy are tuberculous in origin. This is shown by the high incidence of development of tuberculosis in the lung or elsewhere in these cases on follow up and to a lesser degree by isolation of tubercle bacilli from the pleural fluid. It should not be called primary, since though it may be the first and sole clinical manifestation of tuberculous infection, the primary infection has occurred already, the primary focus being usually in the lung, intestine or tonsils.

The infection usually reaches the pleura through the blood stream from the primary complex though it is possible that in some of the cases it may be the result of direct spread to the pleura, from tuberculous mediastinal lymph glands or a small corticopleural tuberculous lesion in the lung primary or otherwise. It follows from this that (a) the disease will be most common during the first few years after primary tuberculous infection (b) that it is liable to be followed by tuberculosis of other organs which receive the infection through the blood stream from the same source. The disease may be latent in these at the time but may flare up at any time later on. The most important amongst these organs are the lungs, other serous membranes and bones and joints. It is a disease chiefly of the young adult, 60 per cent of the males and 80 per cent of the females, falling in the pubertal and postpubertal period of age group 16 to 25 when the stress is maximal.

### Clinical Picture and Course

The onset usually indidious, may be acute or less often sudden as in tuberculosis elsewhere. The classical triad of symptoms is fever, pain in the chest and cough but any of these may be absent and the disease discovered accidentally. The fever is moderate—100 to 103°F., remittent or intermittent. Pain in the chest is usually on the side in the axillary or infra-axillary region but may be referred to the abdomen simulating an acute abdominal condition. It is increased on deep breathing and coughing. The pain is sharp and maximal at the onset and diminishes when the effusion is formed. The cough is painful and non-productive.

Physical examination shows a moderately ill young adult with diminished movement and diminished air entry on one side of the chest—signs which may be explained by pain alone. Barely, the patient may look acutely ill and dyspnoeic with alae nasi moving and the pulse respiration ratio altered from 4 : 1 to 3 : 1. The only other physical sign in early stages is a pleural rub which is soft and halting in the beginning and is best heard usually in the infra-axillary area. Later on, the rub if present becomes coarser and louder—the leathery rub. The pleural inflammation may stop at this stage, the fever subsiding within a few days, the rub disappearing with or without passing through the leathery stage and pain disappearing alongwith. This is the *dry pleurisy*. More often, it may go on to effusion formation and becomes pleurisy with effusion. It should be realised that it requires 300 to 400 c.c. of fluid before pleural effusion can be demonstrated clinically or even radiologically. Except with special techniques the distinction between the dry pleurisy and the pleurisy with effusion becomes less real. If the pleural exudate exceeds 300 c.c. signs of pleural effusion are superadded and the pleural rub usually disappears. The percussion note at the base becomes dull, the impairment extending highest in the axilla and the breath sounds diminish or disappear over the effusion. The presence of whispering pectoriloquy over the effusion is an important sign and indicates a consolidation or a neoplasm in the underlying lung. The mediastinum as shown by the position of the apex beat and the trachea in the suprasternal notch is displaced to the opposite side in a massive effusion. In a moderate effusion, it may not be displaced

at all or when healing has set in may become displaced to the same side as the effusion, due to fibrosis of the pleura and to a lesser degree of the underlying collapsed lung. For the same reason the chest wall may be retracted in the later stages in those cases where complete resolution does not take place. Even in early stages, it is unusual to get fullness of the interspaces and bulging of the chest except in massive rapidly forming effusions.

The blood picture shows a moderate anaemia. The total and differential leucocyte counts are within normal limits except in some acute cases where there is moderate polymorphonuclear leucocytosis. The E.S.R. is increased. The pleural fluid on diagnostic puncture shows a serous effusion, straw coloured—rarely haemorrhagic—with specific gravity 1014 to 1018. The fluid clots spontaneously. The proteins are in a majority between 2 to 5 per cent, the cells may vary from 20 to more than 1000 per c.mm., more than 80 per cent being lymphocytes. The skiagram of the chest shows a diffuse uniform opacity. The radiological appearances may become complicated if there are loculated effusions, e.g. costal, mediastinal, supradiaphragmatic or interlobar. Most of these can be accurately diagnosed if both postero-anterior and lateral views of chest are examined.

Within a week to two months, the temperature comes down to normal but an occasional rise upto 99°F. may persist for sometime. The cough disappears unless complicated by some pulmonary lesion. The fluid gets absorbed often leaving the pleura thickened on that side. The chest movement on the involved side remains diminished and lags behind the other side. The vocal fremitus is diminished, the percussion note dull or impaired and the air entry less. Some dull ache or heaviness usually persists long after all other symptoms have cleared up. Following the fall of temperature, the E.S.R. also comes down. Weight increases and the haemoglobin level and R.B.C. count approach the normal. The patient is able to resume full activity within a period of 2 to 3 months.

Within the first 5 years after the original attack of pleurisy, one-third to one-half the cases get tuberculosis of some other organ. Amongst these, lungs are the most important. Peritoneum, pericardium and bones and joints come next. Less common are the lymph glands, meninges, kidneys and adrenals. Nearly all cases of bilateral pleurisy show some other tuberculous manifestation sooner or later. If the fever does not come down within 2 months inspite of bed rest, some other active tuberculous focus should be suspected and looked for. Skiagram of the chest may show pulmonary infiltration besides the pleural effusion or the sputum may show tubercle bacilli on examination.

The only other important complication is fibrosis and thickening of the pleura which results in retraction of the chest wall and shifting of the mediastinum to the same side.

### Diagnosis

The diagnosis of dry pleurisy rests on the triad of symptoms and on the finding of a pleural rub. In pleural effusion, the diminished movement, dull percussion note, diminished or absent breath sounds are characteristic. The dull percussion note extends highest in the axilla in the case of a pleural effusion and this distinguishes it from thickened pleura where also usually the mediastinum is pulled to the same side. But the final proof comes from a diagnostic puncture where drawing of a serous, straw-coloured, spontaneously clotting exudate rich in lymphocytes distinguishes it from transudates—as in subacute nephritis and heart failure. In pyogenic exudates as in empyema whether secondary to any underlying pneumonia or a septicaemia, the fluid is turbid and contains excess of polymorphs. Haemorrhagic fluid is common in neoplasms. Rarely the exudate in tuberculous pleurisy may be haemorrhagic but then the patient is severely ill running high fever with very often other manifestations of tuberculous disease.

### Treatment

Apart from the relief of pain with hot water bottle, codeine phosphate, and other analgesics the treatment in secondary pleurisy will depend on the cause.

Primary pleurisy in the young adult between 16-40 years should be taken as tuberculous and treated as such until proved otherwise.

The patient should be treated on sanatorium lines for a period of 3-6 months. He should be kept in bed rest till a fortnight after the fever has subsided and then as signs of toxaemia—as shown by increase in weight and fall in the E.S.R. —subside he is allowed to resume activity gradually. The diet should be adequate with high protein, vitamin and made appetising.

Apart from diagnostic puncture, pleural aspiration is necessary only in two situations (a) when the displacement of mediastinum in a massive effusion is such as to cause dyspnoea, or tachycardia or signs of increased venous pressure as shown by the enforged neck veins and enlarged tender liver ; (b) when the pleural effusion is not getting absorbed although the signs of toxaemia—fever and E.S.R. etc. are diminishing.

To prevent fibrosis of the lung, inspiratory breathing exercises should be started soon after the fever subsides and other signs of toxaemia

diminish. The patient is asked to place his hand on the lower ribs on the involved side and then try to expand that side of chest as much as he can by breathing deeply into it. At the start, this may be done for 5 minutes morning and evening and later the duration is increased till full movement is restored.

Use of specific drugs is not necessary in all cases. But it can be safely liberalised now since we know that combination of chemotherapeutic agents prevents the development of resistant strain. If there is any other active tuberculous focus besides pleurisy, in bilateral pleurisy or if the fever does not begin to come down within a week after the patient is put on bed rest or if the general condition of the patient is poor, he is given 1 g. of streptomycin daily with 200 mg. of isoniazid in divided doses or 16-18 g. of P.A.S. in 4 divided doses. After a fortnight, streptomycin is given on alternate days only and it is seldom necessary to continue this treatment with streptomycin and P.A.S. or isoniazid for more than a total period of a month to control the fever and toxaemia unless it is complicated by miliary tuberculosis or tuberculous meningitis. None of these drugs should be given alone.

It is obvious, that none of these cases should be considered cured—as in tuberculosis elsewhere, unless the patient has been free of any tuberculous activity for 5 years. The patient should be kept under observation and should have 3 to 6 monthly check ups, for development of tuberculous lesions in the lung or elsewhere. The check up should involve besides a thorough clinical examination, a skiagram of the chest and estimation of sedimentation rate.

*SPECIAL ARTICLE*

## MEDICAL EDUCATION IN CERTAIN WESTERN COUNTRIES

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### I. ITALY

*Undergraduate Medical Education*—There are at present 21 medical schools in Italy. They are all under Government control, administered through the Ministry of Education. All professors in all the schools are recruited by open competition by the Central Government. The professors, both clinical and non-clinical, get the same grades of pay which are fixed uniformly for all Government services in Italy. The clinical professors are, in addition, allowed private practice. Clinical subjects, therefore, attract the best people. The non-clinical departments as a rule, are unpopular and the authorities find it increasingly difficult to get the proper type of men for such posts.

The system of medical education is more or less modelled on the German system. Before a student enters the medical school, he has to complete 13 years of scholastic studies. The undergraduate medical course extends over a period of 6 years.

During the first two years, the student learns physics, chemistry, biology, anatomy, genetics, physiology and general pathology. In the third and fourth years, he learns more physiology, pharmacology, clinical examination, surgical pathology, anatomy, etc. In the fifth and sixth years he undergoes courses in morbid anatomy and histology, paediatrics, medicine, surgery, obstetrics, hygiene, forensic medicine, mental diseases, venereal diseases and eye diseases, and attends corresponding clinics in the hospitals. The final examination is by thesis on a subject chosen by the student. After he passes the final examination, he undergoes six months' internship. He then has to appear for a state examination conducted in another university before he becomes eligible for registration.

There are no written examinations in any subject. During the undergraduate course, *vivâ voce* alone or occasionally combined with a practical examination, constitutes the system of examination adopted in all Italian medical schools. The undergraduate course is divided into three two year periods. The student usually takes examinations on the subjects studied during the first two years at the end of that period. Failed students are not allowed to study the subjects in the second two-year period, until they have passed in the first year subjects at a subsequent examination.

The larger medical schools in Italy are passing through a period of difficulties, mainly due to want of sufficient equipment and very large influx of students. It is understood that during 1950 over 660 students were admitted to the first year in the Rome Medical School. There are altogether 5,612 students studying in that school alone. This is altogether unsatisfactory as training under such circumstances is bound to be imperfect and insufficient.

*Graduate Medical Education*—The system of graduate education in Italy is on the whole satisfactory. Only a few candidates are selected for each speciality. In orthopaedics, for instance, the postgraduate students are selected by examination. Only five candidates are taken annually. They have to pay for their training. They not only work as residents in the hospital and thus gain practical experience, but also undergo set courses and lectures in general surgery, anatomy, ortho-

paedics and traumatology. The course extends over a period of three years. More or less similar arrangements are in existence in respect of other specialities. Postgraduate training in tuberculosis at the Carlo Forlanini Institute is decidedly of a very high standard. It also extends over a period of three years. The emphasis on gaining practical experience during the course of training as specialists is really commendable.

The system of professorship existing in Italy corresponding to *dozents* in Germany is worthy of mention. A specialist, however experienced he may be in his speciality, cannot hold the post of a professor in a university unless he passes the professorship examination. For this purpose, he ought to have done some original work and should have been attached to a professor for some time. He will be examined not only in his speciality, but also in the art of speaking. The training of a medical teacher, therefore, receives due and deserving attention in Italy.

## II. Sweden

*Undergraduate Medical Education*—The course for medical training begins when a student has passed the 'Student Examination' which qualifies him for entrance to a university. The examination is taken in the gymnasium at the end of his scholastic career. The examination covers Swedish language, history, classical languages, two or three modern languages and elementary science. The medical course comprises 2½ to 3 years of clinical studies and 5 to 6 years of clinical training. Their first year of academic studies is devoted to anatomy, histology, neuro-anatomy and embryology. During the second year the student learns medical chemistry, physiology, and pharmacology. The next half year is devoted to general pathology and bacteriology. The pre-clinical courses consist to a great extent of practical laboratory work conducted mostly in small groups. This type of group teaching has been possible by the recent increase in teaching staff.

A preparatory course for physical diagnosis and laboratory methods is given at the beginning of the clinical period. During the next 4 or 5 years all the clinical subjects including a large number of specialities are taught. Clinical courses include daily work in wards and out-patient departments. The training is completed with a full one year of rotating internship. Examinations can be taken any time after the completion of courses in the particular subjects. The students are examined by the professors themselves in the respective subjects. The nature and type of the examination is determined by the individual professor. Ordinarily only an oral examination is conducted by the professor. There is also an assessor for each examination. There are no university examinations as are conducted in India and elsewhere. The standard of training in the Swedish medical schools is high. The buildings are modern and well equipped and highly competent teachers are employed in every school. The 8 years of training given to a doctor gives him not only an abundance of theoretical knowledge but also a good deal of practical knowledge of the different branches of medicine. Nevertheless, only about 5 per cent of annually registered doctors go directly into general practice. All the rest continue their training as interns trying to acquire knowledge and experience in specialities. Three years is the minimum period for a speciality. Owing to the need for a larger number of doctors at present, and owing to almost forbidding costs involved in the training of a doctor, Sweden is seriously considering the question of reducing the number of years of study. A sub-committee has been appointed for the purpose of revising the curriculum of studies.

There are at present three medical schools in Sweden, one in Stockholm, one in Uppsala and the other at Lund. A fourth one has just been started at Gothenburg. About 150 doctors a year graduate from these medical schools.

*Postgraduate Medical Education*—There are no postgraduate degrees and diplomas or even set courses for postgraduate medical studies in Sweden. Training in any particular speciality is obtained through internship and by attaching oneself to a particular profession. It is left to the professor to say whether a particular doctor has acquired the necessary proficiency in the speciality or not.

Though the organisation for public health, medical relief and medical education is of a high standard in Sweden the authorities are seriously considering the question of effecting a thoroughgoing reform in various directions. It is true that certain rural areas in Sweden are not satisfactorily catered for in respect of health services. There are certain districts which have anything from 5 to 10 thousand population with only one district physician. Hence the Government is devoting its attention primarily to increasing the number of medical personnel by giving training to a larger number of candidates. Sweden has now about 4,350 doctors and expects to have about 4,700 in 1960. This number is considered inadequate if the many health and medical programmes which have been planned are to be given effect to.

## III. United Kingdom

At present the annual output of all the medical schools in Great Britain is about 2,100. This

should enable the maintenance of a ratio of one doctor to 1,400 persons. The general opinion is that the supply of doctors is adequate though the distribution is faulty. An effort is however being made to increase the output of medical schools to 2,400 graduates per year. The number of applicants for admission is five to ten times the number of seats available in the medical schools. It has been ascertained that practically all the students intend to qualify for specialist or consultant status, mainly because of the higher financial rewards. The time has come in all countries to raise the status of the general practitioner. Today G. P. is looked down upon by the specialists. The G. P. naturally suffers from an inferiority complex in consequence. In reality, the status ought to be reversed. The general practitoner looks after the patient from start to finish. The specialist comes in only as a diagnostic or therapeutic agent. These and similar questions are engaging the serious attention of learned bodies like the British Medical Association. A Committee, which was appointed by the B.M.A., has recently published its report on the status and training of the general practitioner.

Selection of medical students is entirely in the hands of the individual schools. Many of the students receive financial assistance from the Government grants to ex-servicemen. No general plan of subsidy of medical students exists under the National Health Service Act or other National Agencies.

There have been no radical changes in the curricula of medical studies in medical schools during recent years. The courses in different universities are more or less governed by the requirements of the General Medical Council. According to the Medical Act, 1950, which is intended to amend the previous Medical Acts, full registration to qualified persons will not be granted without proof of experience. A certificate of experience in an approved hospital in the subjects of medicine, surgery and midwifery should be obtained by a person after passing a qualifying examination. He should be engaged in employment in any resident medical capacity in one or more approved medical institutions. Though the Act has not specified the period of residentship, it is understood that it will not be less than one year. This part of the Medical Act has not yet come into operation as the authorities are engaged in surveying the availability of the requisite number of approved medical institutions.

*Postgraduate Medical Education.*—In order to co-ordinate the efforts of various medical institutions in London in the field of postgraduate medical studies, an organisation known as the British Postgraduate Medical Federation has been created and is operating under the University of London. It is financed by the University Grants Committee to the extent of about 90 per cent of its budget. The Federation has created 13 institutes of postgraduate medical training in the hospitals of London. Though the Royal Colleges also participate in the postgraduate field, they are not directly connected with the Postgraduate Medical Federation.

The British Postgraduate Medical School at Hammersmith forms an integral part of the Federation. The courses of training, consisting of lectures and demonstrations, are given periodically in the different institutes in the respective specialities. The intention of the Federation in running these courses is not to train persons primarily for any diplomas or degrees even though these courses come in handy, for such of those students who are preparing for examinations. These courses are also not intended for the training of consultants. In order that a person may be qualified for the post of a specialist or consultant in London, he should hold a number of house jobs, like junior and senior Registrars, for at least a period of five years. During this period he should obtain a postgraduate qualification in his speciality. Hence, it should be borne in mind that the courses, which are mainly theoretical in nature, given by the British Postgraduate Federation, are not calculated to make one a specialist in any particular field. If a postgraduate student from India wishes to specialise in any branch of medicine, he should obtain a resident appointment in any one of the teaching hospitals if his speciality is on the clinical side, or should get the opportunity to work directly with a professor if he wants to specialise in any of the non-clinical subjects.

Under the National Health Service, organisations for postgraduate studies have been formed in other university areas as well. Oxford, for instance, has a Director of Postgraduate Study, who is responsible for arranging courses in different specialities as well as refresher courses for general practitioners. There is a postgraduate medical committee, whose chairman is also the Dean of Postgraduate Studies in the university. The committee is primarily responsible for arranging the various courses, both for general practitioners and young specialists. There are three types of courses, 'extended course', 'intensive course' and, 'short courses in special subjects'. The committee is also associated with the selection and training of registrars, which is the joint responsibility of the university, teaching hospitals and regional hospital board.

An efficient organisation for postgraduate medical studies also exists in Edinburgh.

There has been an unfortunate tendency on the part of the British universities and other examining bodies to institute several degrees and diplomas for all sorts of specialities. Though a considerable volume of opinion has gathered during recent years deprecating this tendency, the desire for institution of new diplomas has increased the keenness of newly qualified men and women to collect as many degrees and diplomas as possible. This tendency is having a deleterious influence on Indian doctors who have gone to the United Kingdom for postgraduate studies. No doubt the policy of the Government of India has been during recent years to dissuade students from going for foreign postgraduate medical degrees. Unfortunately, however, employment agencies in the States are still issuing advertisements calling for applications for vacant posts from candidates possessing foreign postgraduate qualifications. It is high time that it is made known to all concerned that Indian postgraduate medical qualifications should be considered sufficient for a teaching post. No doubt experience gained abroad, and not foreign diplomas and degrees, should be considered as an additional qualification for a teaching post.

## America

A. Recent Trends in Undergraduate Medical Education—Modern trends in medical education in the States have been clearly indicated in the Annual Report of the Commonwealth Fund for 1952—"Medical Education, for which a new pattern was set up by the Flexner Report of 1910, may now be in the second of 3 phases of adjustment. The first . . . has had scientific medicine as its objective and slogan, specialisation as its dominant pattern, and the university medical centre as its preferred instrument. The section, now unfolding is a phase of transition in which the concept of comprehensive medicine is beginning to modify the definition of scientific medicine, in which there is some reaction against the extremes of specialisation and in which a few medical centres are beginning to re-examine their functions and achievements in a moderately objective way. It is reasonable to hope that it will be followed by a third phase in which there will be some reconciliation between what has been called scientific medicine and what is now called comprehensive medicine, some better adjustment of the specialist to the generalist, and some restructuring of both medical education and medical care to fit the needs of a more knowledgeable social order. Scientific medicine has hitherto been weakest in relation to the patient's effective life and its social environments. The behavioural sciences are already helping the doctor to rely less on intuition and more on systematic knowledge as he approaches these facets of the patient. Not to make use of them so far as they are usable would seem to be unscientific. Can scientific medicine be anything less than comprehensive?"

Responsible medical educationists in the States have been seriously thinking on the above lines for some years. The modern American is motivated by persistent dissatisfaction and is spurred to greater and greater activity and experimentation. I visited over a dozen medical schools and had long discussions with leading medical educationists in that country. No doubt, there is sharp difference of opinion as to the advisability or otherwise of the various experiments that are being conducted in some of the medical schools. Some deans and several professors particularly of pre-clinical subjects, look upon the so-called comprehensive medicine and the trend to integrated study of several subjects, with considerable alarm and suspicion. One of the main criticisms against integration is the extra time to be spent by teachers in teaching, at the expense of the time which they are now devoting for research. Rightly or wrongly they feel that the rapid advances that have been made during the last few decades in the various branches of medical science is because of the distinctive status given to the various sections as independent entities. In some of the European countries and also in some of the Schools in the States, there are separate Institutions for anatomy, physiology, biochemistry, etc. No doubt, such compartmentalisation has been very largely responsible for the rapid advances that have taken place in the medical sciences.

Brief account of some of the important institutions and interesting experiments that are being conducted in some of the medical schools in the States are given below.

*University of Colorado School of Medicine.*—In the medical school at Denver a home care programme for a selected community is in progress, with the main purpose of broadening the basis of experience of both students and teachers. The students by participating in such a programme are able to obtain first-hand experience and knowledge about the influence of personal, social and environmental factors on the incidence of disease and on its progress. In this school, training for general practice has been chosen as a target. The school has entered into partnership with the City Health Department for this purpose. The base of operation is the Denver General Hospital. Here an organisation of students and teachers designed

to give family medical care in conjunction with nursing and social service, carries out the same functions as are ordinarily needed in the patient's home, in the clinic or in the wards. The students are both undergraduate and graduate students in medicine, working under the supervision of a group of instructors. A general medical clinic which replaces the conventional out-patient department constitutes the core of the plan. A patient who comes to the clinic is examined and cared for by a medical student and young physician. Specialists are called in when their special skills are required. The patient, however, returns to the general clinic after he has been examined by the specialist. Many patients are visited in their homes. When a patient needs hospitalisation, a member of the clinic staff follows him in the ward, shares responsibility of hospital care of the patient as far as is administratively practicable, and keeps in touch with him after discharge. A single record accompanies the patient wherever he goes. Throughout the programme the preventive aspects of medicine are emphasised for the student in a framework where the teaching and practice of medicine meet a common ground.

*Harvard Experiment.*—For some time the teachers in Harvard school have been feeling dissatisfied with its educational programme for undergraduate and graduate students in medicine. A bold integrated approach to teaching has been made as a pilot venture in the field of graduate study in basic sciences for the Ph.D. course, before they take up their specialist courses like biochemistry, physiology, pharmacology, etc. Under the leadership of Dr. Eric G. Ball, Professor of Biological Chemistry and Chairman of the Division of Medical Sciences, an inter-departmental committee designed the course and is conducting the teaching programme. I discussed fully with some of the teachers, the methods adopted for the experiment. Different aspects of the subject are dealt with in the same class, by different teachers from the various departments. Even when practical experiments are conducted by the students, most of the teachers belonging to the different departments are present in the class. This method of approach is an education both to the student and the teacher. The experiment is designed to bring the student into close contact with the literature, experimental techniques and basic concepts associated with each of the sciences. Its immediate object is to lay a better foundation for teaching and for "a life of productive scholarship in medical sciences." I was told by Dr. Berry, the Dean of the Harvard Medical School, that the experiment will gradually be extended to teaching of undergraduate medical students. He said that in the next academic year his Faculty had decided to use about half a dozen new entrants to the Medical School as human guineapigs in order to try out in a small way, this new experiment, in the training of medical students.

*Western Reserve.*—Though I did not have the opportunity of visiting the medical school at Cleveland I had the occasion to discuss the pros and cons of the experiment with several prominent educationists in the States and get an underlying idea of its principles. It is no doubt a radical and revolutionary approach to reorganising the entire medical curriculum. The sponsors of the programme at Western Reserve, believe that for an adequate orientation to the course "he should be introduced from the beginning and simultaneously to the basic principles and effects of man's structure, function, growth behaviour and relation to his surroundings." The object is to enable him to study medicine as a whole and not piecemeal. For this purpose, teaching is done by interdepartmental groups and not separately by the various departments. Hence from the very beginning an introduction to clinical medicine is given and services of physicians, surgeons, anthropologists, psychiatrists, social workers, etc., in addition to the basic science teachers, are utilised. Even early in their course the students are brought into contact with patients. The patient's family and his environments are also studied in order to obtain adequate knowledge about their influence on the illness of the patient and *vice versa*.

*Comprehensive Care at Cornell.*—When I visited Cornell Medical School I had occasion to attend one of the conferences held by the clinic for 'comprehensive care'. The patient exhibited was a female child of 3 years whose genital organs and the bladder had to be completely removed as treatment for a malignant tumour. The discussion centred round the psychological changes introduced in the child, the attitude of the mother to the child, prognosis, etc. The surgeon, the physician, the medical social worker and the child psychiatrist all took part in the discussion. It was indeed a stimulating experience. The fourth year medical students of the school attend the clinic and are given the course in comprehensive medicine. The course is designed to be a synthesis of all disciplines to which the medical student has been exposed during the preceding 3 years in the Medical School. "It is a laboratory course in patient management, providing 22½ weeks of contact with a patient in the medical, paediatrics, and psychiatric clinics of the New York Hospital." Apart from learning techniques of physical examination and acquiring skill in differential diagnosis

he is expected during the course to learn how to work with nurses and social workers in co-ordinating hospital facilities and community agencies in the service of the patient. In addition, the student has to attend to one or more families of patients ; the student thereby virtually becomes the family physician for the patient and other members of the patients' family. He examines the patient and his family when they fall ill and helps in making diagnosis and providing treatment both curative and preventive. Even if such a patient is hospitalised he continues to follow him. The student is expected to keep appropriate record of the whole family. Perhaps the most stimulating experience which the student has during the course is group discussion during conferences. He will be responsible for presentation of one or more of his patients on these occasions.

The 'comprehensive care' and teaching programme at Cornell is expected to give the student continuing responsibility for patients when they are ill at home, in the clinic, or in the hospital. Preventive and social aspects of medicine are stressed as integral part of total patient management.

*Pennsylvania Medical School.*—For the last 4 years an interesting programme called "the family advisory group" has been in progress in this school. The student who volunteers for this programme is introduced to a family as a "doctor in training". The family physician's approval and co-operation are obtained for this purpose. In fact he takes part in the teaching programme of the student. The medical students in this school serve thereby as links between the family and the university hospital and its clinics. They assume gradually increasing responsibilities for the medical and relative problems of the families throughout the 4 years in the medical school. Even the 1st year student is thereby enabled in the first instance to get practical experience in human relations. His interest in the study of medicine is augmented by the feeling that he is the active agent and not just an observer. He is also brought in direct contact with medical practice in the home and community.

B. Postgraduate Medical Education.—The newly passed out medical graduates undergo internship for a year. When this is completed, majority of them take up residentship in hospitals for varying periods. While a large number go into general practice, a substantial proportion of young doctors take to specialisation, for which purpose they continue to be residents in recognised teaching hospitals for varying periods as specified by the Certifying Boards. The period of residentship training may extend from 3 to 5 years. Ordinarily no degrees or diplomas are given by American Universities, except in case of pre-clinical medical sciences. Recently, however, some of the universities are giving Master's Degree in clinical sciences as well.

Continuing education of the physician is receiving increasing attention in the medical schools in the States. It has been fully realised by the authorities concerned that it is extremely important to help practitioners in maintaining and expanding their professional competence under the stress of practice. Apart from medical schools, professional associations are also taking active interest in promoting postgraduate medical education. The American College of Chest Physicians for example has been conducting short courses in chest diseases for medical practitioners, in different parts of the country. As member of the Board of Regents of the College I was able to obtain detailed information about the courses themselves and evaluate their usefulness, and the response from the profession. I found that the courses arranged by the College of Chest Physicians were well organised with the voluntary and willing co-operation of many eminent specialists in the field. Considering the cost involved, the response from doctors have been most enthusiastic and encouraging.

Though there is difference of opinion among visitors to America about the adequacy of clinical training given to undergraduate medical students, there is unanimity of opinion about the excellence of the postgraduate training in the States in many medical schools and universities. Systematic courses are conducted for graduate and post-graduate studies. In certain universities like Pennsylvania, there are faculties exclusively for organising such courses. Students work under the supervision of expert staff even in respect of clinical specialities. In the Graduate School of Pennsylvania all graduate students irrespective of whether their training is in the clinical or the pre-clinical sciences, have necessarily to undergo an intensive course in non-clinical subjects during the first academic year. The School offers the Master's Degree in clinical subjects after a three-year course and the Doctorate degree in pre-clinical subjects at the end of 4 years. Invariably the graduate students are encouraged to do research on particular problems pertaining to their respective specialities, in addition to undergoing the training programme. Incidentally, it may be mentioned that experience in research and publication of original papers are considered essential qualifications for teaching positions in medical schools and associated hospitals. Hence almost all the students who undergo training for specialisation are keen in obtaining research experience.

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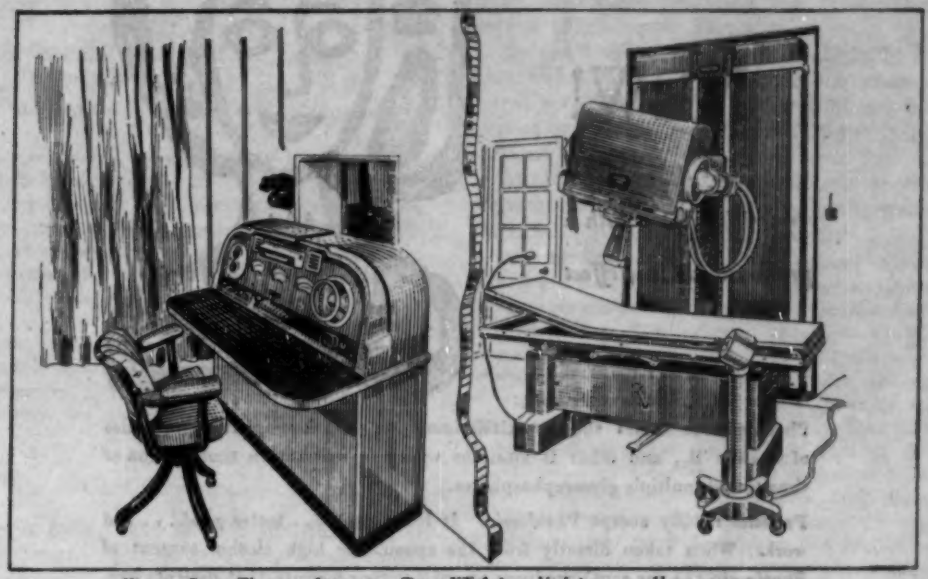

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*CASE NOTES*

# SPONTANEOUS HAEMORRHAGE—BASE OF BRAIN

## (An Autopsy Study of Two Cases)

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AND

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Massive spontaneous haemorrhage in the pons, cerebellum and medulla oblongata as a sequela of hypertension is certainly rare. The peculiar location of the haemorrhage and consequent pressure effects on the vasomotor and respiratory and other centres confined to a very small circumscribed area present clinical features that are likely to be confused with other space occupying lesions in that location. The acute and sudden manifestations of the symptoms as a result of increasing subtentorial pressure may simulate a case of acute narcotic poisoning. Two case records inclusive of autopsy findings are recorded below to illustrate the above.

### CASE REPORTS

*Case 1*—A male, aged 40 was admitted in the ophthalmic wards on 26-8-53 for progressive failure in vision. The patient complained of headache and frequency in micturition—4 months' duration. He gave a history of recurrent attacks of fits and semiconsciousness prior to admission to the hospital.

His blood pressure on admission was 200/120 mm. Hg. Urine contained albumin and hyaline casts. Blood urea was 90 mg. per cent.

Ophthalmoscopic findings: Both the optic discs were swollen, hyperaemic, veins dilated, arteries tortuous, macular and retinal haemorrhages were observed. Hard and soft exudates were present.

The patient was found dead on 9-9-53.

*Autopsy findings and histological observations*: Brain weighed 1480 g. and was unusually moist. Sagittal section disclosed massive blood clots filling the fourth ventricle and haemorrhage in the pons (Fig. 1, *vide* Plate). The cerebral vessels were tortuous but the lumen was patent.

The heart typified concentric hypertrophy of left ventricle. (Fig. 1, *vide* Plate). Extensive interstitial fibrosis was observed.

Lungs showed extensive oedema.

Kidney surfaces were characteristic of secondary contracted kidney. Hyalinised arterioles and arteries completely occluding the lumina associated with dilated tubules and apparently normal glomeruli were the conspicuous features observed on histological study (Fig. 2, *vide* Plate).

Adrenals: The naked eye appearances were normal. Scattered haemorrhages and isolated areas of fibrosis were observed in histological study. Hyalinisation and fibrinoid necrosis partially or totally occluding the lumina were observed (Fig. 3 *vide* Plate).

Spleen was enlarged and weighed 270 g. Pulp haemorrhages and diffuse arteriolar change associated with hyalinisation from partial to total occlusion of arterioles were observed in the histological sections.

Morbid anatomical diagnosis was spontaneous pontine haemorrhage associated with generalised arteriosclerotic changes of organs.

COMMENT—On retrospect the clinical history and findings in corelation with the necropsy and histological findings are conclusive of pontine haemorrhage secondary to hypertension. The recurrent attacks of fits and semiconscious state associated with headache are only a mild reminder of hypertensive encephalopathy, the existence of which was proved by the fundal changes recorded. Spontaneous pontine haemorrhage is the most rare sequela of hypertension and this is probably secondary to cerebral oedema consequent on hypertensive encephalopathy which impedes the venous flow drained by middle meningeal vessels and thus make the capillaries of the brain-stem prone to rupture. As in this case the clinical anticipation of such a catastrophe is impossible. Although the sections of the kidney histologically studied did not disclose any area of arteriolar necrosis of the glomerulus. The finding of fibrinoid necrosis in adrenal vessels associated with haemorrhages may justify one to think that the condition presumably assumed a malignant phase over an already existing benign hypertensive lesion.

*Case 2*—A. N., unmarried female, aged over 40, who visited Visakhapatnam from Madras to attend a conference, after a short nap on 24-2-54 developed intense headache at 3-30 P.M. and said to have vomited six times. She was unconscious ever since and was admitted to King George Hospital.

CHIEF CLINICAL FINDINGS: She was dyspnoeic, cyanosed and had stertorous breathing. She coughed up large quantities of froth. Uterus was enlarged and was of 8 weeks' size. Blood pressure 170/90 mm. Hg. C.S.F. blood stained.

A clinical diagnosis of acute morphia poisoning was made and she was treated accordingly. She expired at 3-30 A.M. the following morning.

CHIEF NECROPSY FINDINGS INCLUSIVE OF HISTOLOGICAL OBSERVATIONS (P. M. No. 288):

Fine whitish froth was seen covering the lips. The vault of the head and base of the skull were

intact. A thin subdural clot was observed in the left half of the posterior cranial fossa. Brain weighed 1620 g., was unusually moist and showed cerebellar cones. Horizontal section of the brain disclosed massive intracerebellar haemorrhage left half with ill-defined borders (Fig. 4, *vide* Plate). Subarachnoid haemorrhage was observed in the left half of the cerebellum. No aneurysms at the base of the brain were observed. Arteriosclerotic changes of the branches of the basilar arteries were observed but not sufficient to occlude the lumina.

Trachea was covered with froth. Lungs presented typical appearances of waterlogging.

Multiple petechial haemorrhages in the cardiac portion of stomach were observed.

Heart weighed 420 g. The pericardial surface was masked in parts by fat. Histological sections studied revealed extensive fatty change and interstitial fibrosis with minimal arteriolosclerosis (Fig. 5, *vide* Plate).

Kidneys weighed 180 g. each. In places the capsule was adherent. Histological sections disclosed an occasional arteriole showing sclerosis.

Spleen was enlarged and weighed 420 g. Varying grades of sclerosis and hyalinisation of the vessels in the malpighian body and elsewhere were observed (Fig. 6, *vide* Plate).

The fundus of the uterus was uniformly enlarged and retained normal shape. Section revealed a submucous fibromyoma filling the entire fundus.

MORBID ANATOMICAL DIAGNOSIS : Spontaneous cerebellar haemorrhage secondary to arteriolosclerosis.

COMMENT—Sudden onset of coma and dyspnoea in a woman who was suspected to be conceiving, the latter based on the sole fact of an enlarged uterus forced the clinician to make a provisional diagnosis of acute morphia poisoning and treat accordingly. But persistent vomiting associated with coma, respiratory embarrassment together with finding of blood-stained C.S.F. are in favour of cerebellar mischief. A space occupying subtentorial lesion as in this case is invariably fatal by paralysing the respiratory centre.

The mechanism of haemorrhage in cerebellum in cases of hypertension may be similar to that recorded in brain-stem haemorrhages.

Hranilovich and Baggenstoss (1953) emphasized the percentage incidence of vascular changes in viscera in malignant hypertension. Our finding of some organs being spared of vascular sclerosis while others being affected uniformly as in the case of spleen in both the necropsy reports recorded, only confirm the findings of Hranilovich and Baggenstoss (1953) in that generalised arteriolar changes in viscera are a common finding in malignant hypertension. Fields and Halpert (1953) while reviewing pontine or mid-brain haemorrhages and while recording three of their cases observed that mid-brain haemorrhages occurred only in those patients in whom there was a sudden change in intracranial hydrodynamics as brought about by sudden trauma, lumbar puncture and ventriculography which cause herniation through the tentorial incisura.

We feel that sudden fluctuations in intracranial tension associated with hypertensive encephalopathy by causing cerebral oedema as in these two cases are likely to interfere with the venous outflow and thereby effect rupture of capillaries in the brain stem and neighbouring areas.

SUMMARY

1. Two necropsy reports of generalised arteriosclerosis associated with pontine in one and cerebellar haemorrhage in the other are recorded.

2. The mechanism of spontaneous haemorrhage in hypertension in the base of brain and its clinical recognition are briefly discussed.

ACKNOWLEDGMENT

Our thanks are due to Dr. M. R. Subbarao, M.B.B.S., for the help rendered. With pleasure we acknowledge the help rendered by photo-artist Edwin and his son.

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## ADULT FILARIA (BANCROFTI) IN THE ANTERIOR CHAMBER OF HUMAN EYE

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R. C., a Hindu male, aged 29 years, was seen on 29-11-53 complaining of occasional blurring of vision in left eye—duration one and a half months. There was no redness or pain in the eye during the whole period.

*Past history*—In 1947, the patient suffered from fever off and on for six months. The onset was with chill and rigor. He never had any pain or swelling in his groins or any other part of the body, and there was no pain or itching on the arms or face. The blood was not examined and the case was treated as one of malaria. He had fever for 15 days in 1951 and was treated as paratyphoid fever ; the blood was not examined.

*Family history*—Nothing particular.

*General examination*—Everything normal except a small hydrocele on the right side. The scrotal skin was normal.

*On examination*, the right eye was quite normal with vision=6/6 ; the left eyelids, conjunctiva,

Fig. 1 (Case 1)—Photograph illustrates massive blood clots IV ventricle and haemorrhage pons. Concentric hypertrophy left ventricle, capsule stripped scarred and granular surface of kidney.

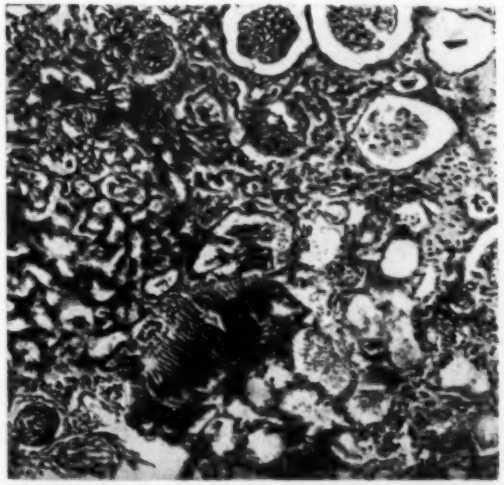

Fig. 2 (Case 1)—Photomicrograph of the kidney illustrates hyalinised and occluded arterioles and arteries, dilated tubules and apparently normal glomeruli (H & E×60).

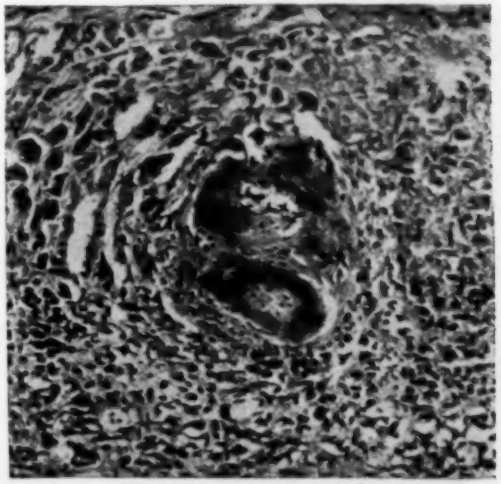

Fig. 3 (Case 1)—Photomicrograph illustrates hyalinisation and fibrinoid necrosis of twin arterioles in the adrenal and also intercellular increase in fibrous tissue. (H & E×60).

Fig. 4 (Case 2)—Showing section surface of cerebellum with haemorrhage.

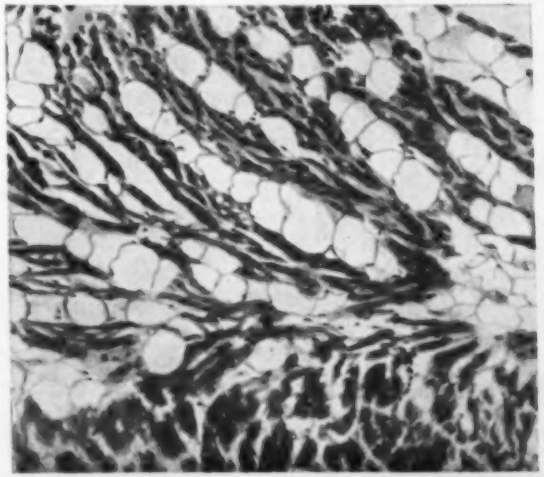

Fig. 5 (Case 2)—Photomicrograph illustrates extensive fatty change intervening myocardial fibrils. (H & E×60).

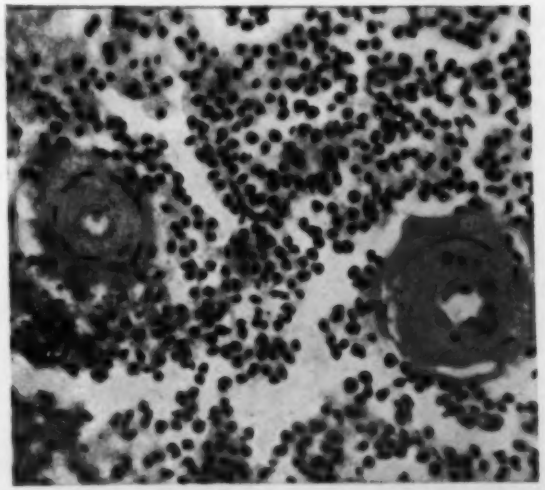

Fig. 6 (Case 2)—Illustrates couple of arteriosclerotic and hyalinised arterioles of the spleen. (H & E×100).

Fig. 1—f 22. 1/400 sec, GE No. 22 flash bulb, at a distance of 18" from the eye, with one 3 + Potra and one 2 + Potra lense over Kodak Ektar 4.7 Lens. A Kodak Precision Enlarger Assembly B with full extension of bellows is used as a camera. The plate used is Kodak Super Panchrompress. Original size of the negative is $3\frac{1}{4} \times 4\frac{1}{4}$". P 1200 X6.

CHATTERJI—*Adult Filaria in the Anterior Chamber of Human Eye (pp. 146—47)*

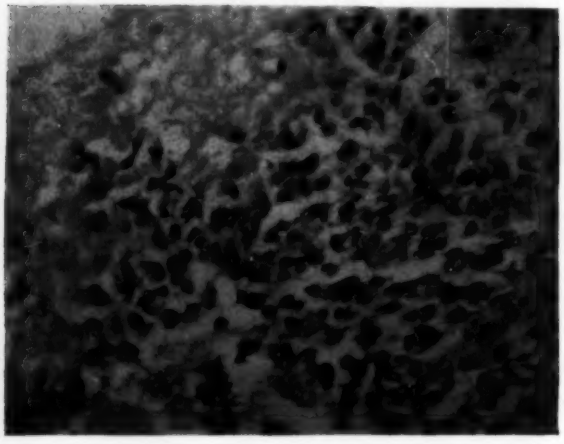

Fig. 1—Section showing areas of degenerated tissue, degenerating liver cells, some normal looking liver cells separated by an enormous number of epithelioid cells. (Van Gleson × 120).

SARIN AND SARIN—*Tuberculoma of the Liver (pp. 147—47)*

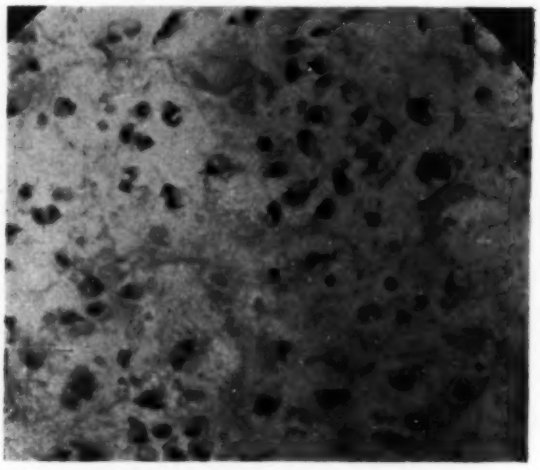

Fig. 1—Section showing clumps of neoplastic cells separated by fibrous tissue septa. Cells show vacuoles. The matrix is homogenous.

CHAKRAVARTI—*Chordoma (p. 148)*

lacrimal apparatus, cornea, iris were normal. On careful examination of the anterior chamber, a very slender, highly motile parasite, about ¾ inch long was found at the lower part of the chamber. When the patient's head was tilted, the parasite went to that side of the eye. The parasite was coiling up into the shapes of 0 or 8. The pupil was reacting well. The media were clear and the fundus oculi was normal. The vision was 6/6.

*Investigation*—Blood examination : R.B.C.—4·8 mill. per c.mm. ; W.B.C.—5,300 per c.mm. ; polymorphs—56%, lymphocytes—26%, mononuclears —8% and eosinophils—10%.

Microfilaria were demonstrated in the blood during the daytime and also at the night time. Blood taken at 11-30 A.M. had two microfilaria, and taken at 11 P.M. had 30 microfilaria in the film. And in thick film preparation at night many microfilaria were seen.

*Operation*—The parasite found inside the eye was diagnosed as one of adult filaria, and its removal was decided. As the parasite was taking the most dependent position in between the movements, the head of the patient was tilted back and slightly to the left so that the parasite was at 3 o'clock position. Under local anaesthesia, a limbal incision, about 1 cm. long was made between 3-30 o'clock and 5 o'clock. A little aqueous escaped, and the parasite began very brisk movements. The assistant held a cotton wool swab just under the incision, and the lower lip of the incision was depressed with a broad iris repositor. The parasite escaped with the gush of aqueous humour, into the cotton wool swab. In spite of all attempts, the parasite could not be recovered. The patient made an uneventful recovery and retained the full vision of 6/6.

### Discussion

It was almost certain that the parasite was an adult *Filaria bancrofti*, from its size, shape and motility and from the blood examination report. It was a great pity that the parasite could not be recovered. The patient tolerated the parasite in the anterior chamber without any inflammatory reaction in spite of the filaria lashing about for one and half month.

*Filaria bancrofti* is fairly common in this part of the country and *Culex fatigans* is supposed to be the carrier. Filaria inside the eye is very rare. The microfilaria circulate in the blood stream and the adult parasites in the lymphatics. The entry into the eye of an adult parasite is by burrowing through the coats of the eye or a microfilaria may lodge in the intraocular vessels. Nayar and Pillai (1932) reported a case in which an adult filaria came into the anterior chamber after remaining in the vitreous chamber for 19 days. Before the parasite came into the anterior chamber, the patient saw flashes of red and green. The parasite was removed with a keratome incision, escaping with the gush of aqueous. Wright (1934) saw a parasite lashing about in the anterior chamber. There was iridocyclitis, with exudates in the anterior and vitreous chambers associated with optic neuritis and haemorrhages in the retina. After removal of the parasite with a keratome incision, all inflammatory reactions disappeared and the vision returned to normal. The parasite was recovered with great difficulty and it was identified as *Filaria bancrofti*.

### Acknowledgment

My thanks are due to Drs. M. Saha, S. K. Ghosh, S. C. Mitra, J. P. Sinha and A. Gupta for their kind help in this case and to Mr. Rao for the photograph.

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## TUBERCULOMA OF THE LIVER

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Tuberculosis of the liver is seldom seen clinically, although it is a frequent finding on postmortem, in cases of miliary tuberculosis.

Miliary tuberculosis of the liver produces enlargement of the liver which is uniform and tender.

Tubercle bacillus may reach the liver *via* the hepatic artery in generalised tuberculosis or it may be conveyed by portal vein in intestinal tuberculosis. There is no evidence that tubercle bacillus travels up the bile ducts and very little that hepatic tuberculosis is conveyed through lymphatics.

A case of tuberculoma of liver is reported below.

### Case Report

M., Hindu, male, aged 40 years was admitted on 26-1-1954 with a painful lump in the epigastrium. This was noticed 12 days back. At that time he had severe pain in the epigastrium and his attention was drawn towards the lump. He gave no history of fever or cough with expectoration.

Nothing of importance was found in the family history. He gave history of jaundice 10 years back.

On admission the patient was undernourished with pulse 78 per minute, respiration 18 per minute, temperature 98·4°F. and B.P. 114/78 mm. Hg. There was no oedema or jaundice. The right lobe of the liver was felt 1½ fingers below the costal margin and the left lobe was enlarged 5

fingers ; the liver was tender and smooth and there was a swelling in the centre of this enlargement about 2" × 1" which was comparatively soft in consistency, rest of the liver was normal in consistency. The edge of the liver was smooth. The spleen was just palpable. P.R.—normal. Proctoscopy—normal.

Occasional post-tussive fine crepitations in the right apical region. Other systems were normal.

*Investigations*—Total W.B.C., 9000 per c.mm. with poly 80%, lympho 19% and mono 1%. Hb. 11·5 g., R.B.C. 3·0 million per c.mm. and E.S.R. 32 mm. per hour. Urine—no abnormality. Stool —N.A.D. ; occult blood test—negative. Kahn's test—negative. Liver function test—On 28-1-'54 : Thymol turbidity 12 units ; thymol flocculation 3+ ; colloidal gold 5+ ; blood proteins 5·14 g. per 100 c.c. On 19-2-'54 : Thymol turbidity 3 units ; thymol flocculation negative ; colloidal gold 1+ ; bromsulfathalein and hippuric acid tests were normal ; sputum was positive for tubercle bacilli. Screening showed right apical and left mid-zone infiltration—confirmed by skiagram. Barium meal —Liver shadow massive, stomach pressed, duodenum also pushed down, no other abnormality.

On 4-2-'54 liver biopsy was done. The material obtained by ordinary needle and syringe from the anterior surface of the liver, which was slightly softer in consistency below the level of costal margin, was scanty and consisted of cheesy mass. Smear made from this and stained for acid-fast bacilli showed degenerated material, few normal looking liver cells and a few A.F.B.

From another site which was about 4 cm. to the right of the above soft area, liver biopsy was done by Silverman's needle. The sections were stained with cosin haematoxylin, van Gieson reticulum (Gormans) and acid-fast stain. The section showed loss of normal liver architecture. Only few strands of normal liver cells could be made out. These were separated by epithelioid cells. There was scanty reticulin except in one area where fibroblastic proliferation was marked, at this site numerous reticulin fibres were present.

There were no Langhan's type of cells. No acid-fast bacilli were found. Areas of necrosis with complete loss of architecture were present (Fig. 1, *vide* Plate).

After biopsy the liver enlarged but it regressed after treatment with streptomycin, P.A.S. and isonicotinic acid hydrazide. The patient left on 19-2-'54 and the full progress could not be watched.


### Summary

A case of tuberculoma of the liver is described, source of infection being lung tuberculosis.


## CHORDOMA


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Chordoma is a rare tumour, and arises from notochordal tissue. Chordoma may arise from any part of the spinal axis. According to Mabrey 58 per cent of chordomas are sacrococcygeal, 32 per cent spheno-occipital and the remaining 10 per cent along the vertebral column. The spheno-occipital tumours do not attain very large sizes, whereas the sacrococcygeal growths grow to sizes weighing many pounds. Chordomas grow slowly as a well defined lobulated mass of soft gelatinous tissue invading and destroying the neighbouring bone and extend into the surrounding soft tissue. They recur after removal. In a small number of cases they produce metastasis either lymph-nodal or blood-borne.


### Case Report

R. B., Bengali, Hindu, male, aged 44 years. Family history nothing particular. Two years ago, one day while getting down from a rickshaw he felt a jolting sensation in his gluteal region, where, he remembered, he had quinine injections 6 years ago. For the last six months he has been feeling a heavy sensation in the same region. This sensation gradually increased in the following 5 months to a sensation of tension and dull pain. The pain went on increasing. On examination, the buttock was diffusely enlarged, without any localised swelling. No definite fluctuation was elicited, but a sort of boggy feeling was noticed. The dull pain became severe and the bulk of mass in the buttock increased so much that he became bed-ridden. A biopsy was done. The section showed clumps of neoplastic cells of irregular size and shape with nuclei of varying size and shape, separated by fibrous tissue septa into lobules. The characteristic feature was that most of the cells were vacuolated, with a series of small vacuoles surrounding the nucleus, or the nucleus was pressed to one side by a large vacuole. The matrix in which the cells were embedded was homogeneous and basophilic. The fibrous septa had many vessels and frequently showed areas of iron pigmentation from old haemorrhage. Areas of necrosis and haemorrhage were also present. The histological diagnosis was chordoma (Fig. 1, *vide* Plate). He was advised operative treatment. A severely destructive operation like the hind-quarters operation was done nearly one year ago and the patient had been doing fairly well. Since the last two months he is again complaining of uneasy sensation at the site of amputation which has however completely healed up.

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JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION
CALCUTTA, NOVEMBER 16, 1954

## PHAEOCHROMOCYTOMA

Phaeochromocytoma is a rare tumour ; but the progressively increasing number of reports in the literature goes to show that the condition though rare may be come across more frequently than usually expected. During recent years its diagnosis has improved and its management by surgical removal has been successfully[1, 2, 3, 4] carried out, one of the most recent such reports being that of Conley *et al.*[5] One case has been reported by Shah and Vakil elsewhere in this issue.

Phaeochromocytoma originates in the chromaffin tissue, most commonly in the adrenal medulla, and somewhat less frequently in the retroperitoneal tissues around the aorta. It is composed of differentiated mature type of cells resembling those of the normal adrenal medulla. Neoplasms of identical histologic structure in the carotid body and in the organ of Zuckerkandl are also known but they are physiologically inactive. However, very recently Lumb[6] has reported a case where such a tumour in the organ of Zuckerkandl was associated with hypertension. Phaeochromocytoma does not show any sex-predilection. The tumours are usually benign and unilateral. Malignant varieties are bilateral[7] but physiologically inactive.[8] Bennon and Allen[9] however reported a case of a right sided physiologically active tumour which had metastasised in the pleura and in the femur. Phaeochromocytoma gives rise to symptoms of hyperfunction of the adrenal medulla, *viz.*, sweating, mydriasis, tachycardia, vomiting, headache, hypertension and hyperglycaemia terminating suddenly in death. Thus although benign histopathologically, it is a dangerous type of tumour.

Symptom-complex due to this tumour may be varied. Hypertension is present, but is generally paroxysmal,[10] although sustained hypertension[11, 12, 13] is not a rare finding. Very recently a proved case of phaeochromocytoma has been reported by Henry[14a] which was not associated with hypertension. Secondary stimulation of the adrenal cortex by an excess of the adrenal medullary secretion and its effect on the pituitary are thought to be the cause of sustained hypertension.[14b] Glycosuria and hypermetabolism may be persistent with hypertension. Due to hypermetabolism, symptoms resembling those of thyrotoxicosis may be observed. Cases have been reported where, in presence of such symptoms surgical removal of thyroid has been done with disastrous results.[15, 16] Symptom-complexes simulating acute abdominal emergencies[17, 18] and myocardial infarction[19, 20, 21] have also been observed. The condition sometimes simulates Addison's disease.[22] Mackeith[10] gave the following list of diseases which clinically simulate phaeochromocytoma : essential hypertension, lead poisoning, eclampsia, tabes dorsalis, aortic reflux, angina pectoris, thalamic tumour, hyperthyroidism, diabetes mellitus, peptic ulcer, chronic nephritis, polyarteritis nodosa, surgical shock, migraine, cerebral tumour, cardiac neurosis and anxiety state. Such wide variance of symptoms and clinical manifestations is the principal cause of the condition being missed. This may also be one of the reasons for the apparent rarity of the tumour. One may suspect the condition when the symptoms are such as to suggest intermittent or paroxysmal hypertension ; hypertensive syndromes with metabolic disorders including high basal metabolism ; glycosuria and fasting hyperglycaemia ; occasional sweating epidodes particularly at night, vomiting and headache. The presence of a palpable mass in the abdomen or in the lumbar region which on pressure gives rise to transient symptoms of hyperadrenalinaemia, when present is a help in diagnosis.

The protean manifestation of the clinical picture may be due to difference in the proportion of the two hormones, adrenalin and nor-adrenalin,[11] in the tumour tissue and in the rate of their secre-

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tion. Assay of the tumour tissue for these hormones in different individuals has given different results. Thus, the relative contents of adrenalin and noradrenalin per gram of tumour tissue was found to be 3·8 and 2·8 mg. by Cope *et al*[23], 3·12 and 0·96 mg. by Goldenberg *et al*,[24] 1 and 0·34 mg. by Holtz *et al*[25] and 1·32 and 8·3 mg. by Pantridge and Burrows.[5] Lichtenberg *et al*[26] found the ratio of adrenalin and noradrenalin in tumour tissue as 3 : 1. Scherman and Barctto Netts[27] estimated noradrenalin only and found 2·3 mg. per gram of tumour tissue.

Even when the possibility of a phaeochromocytoma is considered, confirmation of its diagnosis gives rise to further difficulties. Many tests have been evolved for this purpose. Shah and Vakil elsewhere in this issue have described some of them in detail. The multiplicity of these tests indicate the difficulty with which the clinician is frequently faced in confirming a proper diagnosis.

The diagnostic aids can be broadly classified into four groups: (*i*) Radiological. An x-ray of the abdomen may show areas of calcification if the tumour is of long standing. Intravenous pyelography may show no abnormality if the tumour is small. With large tumours a downward displacement of the kidney may be demonstrated if the site of the tumour is the adrenal gland. More frequently a distortion of the upper renal calyces may be found. Perirenal insufflation of air may visualise the swelling but the method entails the risks of fatal air embolism and a paroxysmal hypertensive crisis. Presacral insufflation of oxygen[28] or air has been found satisfactory and less dangerous. Laminograms of the adrenal area have been employed. One of the cases recently reported by Conly *et al*[5] has been diagnosed by this method. (*ii*) Tests designed to stimulate the release of pressor substance from the tumour so that an attack can be produced are suitable in a case of phaeochromocytoma associated with paroxysmal hypertension. Roth and Kvale[29] described the use of intravenous histamine for this purpose. The test is not without danger and should not be undertaken unless hypotensive and ganglion-blocking agents are at hand. Only patients who show a return to normal blood pressure in the intermittent phases can be used for this test. Methylcholine chloride has also been used for the same purpose. (*iii*) The diagnostic use of antagonistic drugs like regitine and dibenamine is a popular measure in diagnosis. The fallacies and danger of these diagnostic methods have been well discussed by Swan,[13] Tulloh[30] and DeCourcy.[31]. (*iv*) In recent years greater attention has been paid for the actual estimation of adrenalin and noradrenalin in the body fluids.[25, 32, 33] The diagnostic use of an increased urinary output of adrenalin and noradrenalin in phaeochromocytoma was first described by Engel and Von Euler.[33] Until recently the principal method of assay has been biological. In a recent communication Goldenberg *et al*[24] have reviewed the subject of estimation of urinary catecholamines and have described a chemical photofluorometric method of estimation which will probably find a wider applicability in any well equipped biochemical laboratory.

Surgical removal of the tumour is the treatment of choice. But this is also not free from danger. During the process of operation the necessary manipulation causes a release of a large quantity of adrenalin and noradrenalin. This may give rise to a hypertensive paroxysm which may prove fatal[34] even before the clamping of the blood vessels of the pedicle. The sudden excess of these substances may also produce left ventricular failure.[35] Benzodioxane has been employed to counteract these hypertensive accidents, but the chance of the drug being effective depends upon the amount of adrenalin and noradrenalin which the surgical manipulation liberates from the tumour. In one of the recent cases reported by Colson[36] 18 mg. of benzodioxane had no effect on the hypertension. There may be shock due to sudden fall of pressure caused by the sudden subsidence of hyperadrenalinaemia and which occurs after the blood vessels have been clamped or just after completion of the operation. The use of blood transfusion and methedrine group of drugs has been found to be of value in post-operative shock after removal of phaeochromocytoma. Anaesthesia is a bugbear in the surgical management of these cases. Factors which govern the choice of anaesthetics have been carefully discussed by Ward *et al*[37] and Apgar and Papper.[37]

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Removal of phaeochromocytoma may be followed by a relief of hypertension. In some cases hypertension may persist, and more and more is being known about the persistence of hypertension after the tumour has been removed. This may be caused by an adjacent extra-adrenal tumour or by the existence of a state of non-humoral hypertension. A case illustrating the former condition has been described very recently by Conly *et al.*[5] In presence of the latter condition the possibility of a Smithwick's operation may have to be considered. In the case reported by these authors thoracolumbar splanchnicectomy performed four months after the removal of phaeochromocytoma was followed by the relief of hypertension.

Williams[35] stated that "patients (with phaeochromocytoma) showing persistent elevation of blood pressure may have all the anatomical and symptomatic complications that go with hypertension." So the only sure way of diagnosing the condition is to remember the possibility of a phaeochromocytoma when dealing with a hypertensive subject.

[35] Text Book of Endocrinology, W. B. Saunders, Philadelphia, 1950.

## 31ST ALL-INDIA MEDICAL CONFERENCE, LUCKNOW

The 31st All India Medical Conference will be held at Lucknow this year on 26th, 27th and 28th December 1954.

Lucknow is an old town of Uttar Pradesh with an eventful history, an account of which would be interesting.

It is a place of parks, gardens and imposing monuments. It shares with Allahabad the position of the headquarters of the government of Uttar Pradesh, and has a residence for the Governor; it is also the seat of the State legislature. It has a university of its own. The Medical College is the finest in north India, and the adjoining hospital was erected on the most modern design at a cost of over 250,000. A picturesque building, known as La Martiniere, takes Anglo-Indian boys and is partly supported by an endowment left by General Claude Martin in 1800. There are several important industrial establishments, chiefly paper mills, printing presses and metal works. The chief indigenous industries are gold and silver brocades, muslins, embroidery, brass and copper ware, pottery and moulding in clay, and vessels and ornaments in beaten silver. Lucknow being an important railway centre, there are large workshops; and it was one of the first of the towns in Upper India to be supplied with electricity.

Among the events of the Mutiny of 1857 the defence of the Lucknow Residency comes, in historic interest, only second to the tragedy of Cawnpore. The name "residency" has been applied not only to the residency itself, but to the whole of the outbuildings and entrenchments in which Sir Henry Lawrence concentrated his small force. These entrenchments covered almost 60 acres of ground, and consisted of a number of detached houses, public edifices, outhouses and casual buildings, netted together, and welded by ditches, parapets, stockades and batteries into one connected whole. On the summit of the plateau stands the shell of the residency proper, the official residency of the chief commissioner, a lofty building three storeys high, with a fine portico. Near the residency comes the banqueting hall, and beyond the Baillie Guardgate lie the ruins of the surgeon's house, where Sir Henry Lawrence died of a shell-wound, and where the ladies of the garrison were sheltered in underground rooms. Round the line of the entrenchments are pillars marked with the name of the various "posts" into which the garrison was distributed. The most dangerous of these was the Cawnpore battery post, where the stockade was directly exposed to the enemy's fire. The mutineers had rifles fixed in rests in the house opposite, and swept the road that led through the residency enclosure at this point. Close to the residency is the Lawrence Memorial, an artificial mound 30 ft. high crowned by a marble cross.

Among the other buildings of interest in Lucknow is the Imambara, which is one of the largest rooms in the world (162 by 54 ft.), having an arched roof without supports. This room was built by the Nawab Asaf-ud-dowlah in 1784, to afford relief to the famine-stricken people. The many monuments of his reign include his country palace of Bibiapur, outside the city. Among later buildings are the two palaces of Chhattar Manzil (now Drug Research Institute), erected for the wives of Ghazi-ud-din Haidar (1814); the remains of the Farhat Bakah, dating from the previous reign, and adjoining the greater Chhattar Manzil; the observatory (now a bank) of Nasir-ud-din Haidar (1827); the imambara or mausoleum and the unfinished great mosque (Jama Masjid) of Mohammed Ali Shah (1927), and the huge debased Kaisar Bagh, the palace of Wajid Ali Shah (1847-1856), now divided up into residences.

# CURRENT MEDICAL LITERATURE

### Subdural Collection of Fluid in Tuberculous Meningitis

TURNER (*Lancet*, **1** : 849, 1950) in reporting on a fatal case of subdural collection of fluid complicating tuberculous meningitis writes that it is important to make burr-holes in cases where the level of consciousness suddenly deteriorates and that a tear in the arachnoid is probably the important factor in the aetiology of subdural collections of fluid.

### Treatment of Tuberculous Meningitis

WADDEL AND OTHERS (*Am. J. Dis. Child.*, **87** : 273, 1954) present data on the results of the treatment of two series of patients with tuberculous meningitis, the first treated by the conventional schedule of intramuscular and intrathecal streptomycin with oral para-aminosalicylic acid and/or thiazolsulfone (Promizole) and the second treated with intramuscular streptomycin and oral para-aminosalicylic and isoniazid, without intrathecal streptomycin.

The results obtained in the first series were not satisfactory. The mortality rate was high, and the frequency of complications was distressing. Life expectancy was relatively short for most of the children in whom the disease was apparently arrested but who were suffering from serious nervous-system damage.

Administration of streptomycin intrathecally often is a difficult therapeutic problem. In our earlier series, this form of therapy frequently had to be interrupted because of serious reactions.

Serum and cerebrospinal-fluid isoniazid levels for the first three patients of the second series are included.

### Control of Cerebrospinal Meningitis Epidemics

MACCHIAVELLO AND OTHERS (*Bull. WHO.*, **10**: 1, 1954) give in the following lines the summary of their observations :

Chemoprophylaxis with sulpha drugs or PAM (procaine penicillin G in oil with 2 per cent aluminium monostearate) was effective in protecting the groups of population to which it was administered, whatever the stage of development of the individual epidemics in the experimental villages in which it was applied. There is no reason for assuming that chemotherapy influences the development of such epidemics, which in at least some of the villages were apparently in their waning phase. Since chemoprophylaxis has no immunity-developing properties, there is no clear explanation why the treated groups were not subsequently reinfected, although they remained in close contact with the highly infected untreated groups. There are some inconclusive indications that this may have been due to a lesser chance of reinfection in the villages with low percentages of untreated population, to the development of a low-grade immunity in previous carriers cleared by the chemoprophylaxis, or to a decreased rate of infectiousness of the meningococcus under environmental conditions influencing the natural waning of the epidemic.

The results obtained in the trials strongly indicate that they were not due to chance, and we fully advocate the extension of the method to prevent the spread of cerebrospinal meningitis epidemics under the rural conditions of the Sudan. Administrative organization of such a control is not only possible, but may be easily developed with economy and appreciable saving in effort.

It is suggested that in an expanded scheme for national control of cerebrospinal meningitis epidemics, sulfa drugs should be administered in the maximum dosage mentioned in this paper, *i.e.*, 4 g per adult, 2·5 g per child between 5 and 15 years of age, and 1·5 g per child under 5 years of age. Doses of 1·0 g or less do not appear conclusively effective for children. It has been shown that PAM is equally effective in protecting the population against cerebrospinal meningitis. The dosage of 75,000 units per child under 5 years of age is fully effective, but a 150,000-units dosage per adult seems to be rather low and should be increased.

The effect of chemoprophylaxis in protecting the community as a whole depends largely on the percentage of the population treated. The higher this percentage, the less the chance of reinfection of the treated group. It should be remembered that chemoprophylaxis does not confer immunity by itself.

There is no indication that either of the two drugs used in the experiments is better than the other for mass chemoprophylaxis. Their application must not be concurrent, because they afford an important means of controlling cerebrospinal meningitis in localities already treated by one drug, when there are reasons for believing that the meningococcus has developed resistance to the first drug used, or if the epidemic recurs.

The cost of PAM prophylaxis appears to be even less than the cost of sulfa prophylaxis. Penicillin has some definite advantages over sulfa drugs.

Although the experiments were carried out with sulphamezathine, previous experience with the effectiveness of sulfa drugs favours sulfadiazine or sulfamerazine for treating cerebrospinal meningitis. In our field trials we found that doses of sulphamezathine of less than 1·5 g were not completely satisfactory. This matter should be carefully studied in relation to the economic side of any large mass campaign. Disregarding economy, we believe that all related sulfa compounds are effective if given in the correct doses.

### Diet and Atherogenesis

PAGE (*Circulation*, **10** : 22, 1954) writes :

1. The body can synthesize 2 g. of cholesterol a day to be compared with the usual intake of 0·2 to 0·4 g. a day; the cholesterol content of the diet is therefore less important because of endogenous synthesis.
2. People on low fat diets have lower plasma lipids.
3. The fat, not the cholesterol content, is important.
4. The total caloric intake is important.
5. Vegetable and animal fats seem equivalent.
6. The level of blood lipid in some individuals, and possibly races is largely independent of diet.
7. The hyperlipaemia of most diseases is endogenous.
8. Moderate caloric intake with one quarter as fat, seems reasonable.
9. Extremes of fat intake should be avoided.

## CURRENT TOPIC

The following speech was delivered by Dr. Jivraj N. Mehta, Minister for Finance, Prohibition and Industries, Bombay, while inaugurating the Opening Ceremony of the Exhibition of the drawings of the designs in the Architectural Competition for the proposed buildings of the All-India Institute of Medical Sciences, Delhi, at 4 P.M. on Saturday, the 28th September 1954 :—

I am grateful to the President and Members of the Indian Institute of Architects for inviting me to inaugurate the opening ceremony of the Exhibition of the drawings of the designs in the Architectural competition for the proposed buildings of the All-India Institute of Medical Sciences, Delhi. I appreciate this honour and have much pleasure in participating in the function; the more so as I have been closely connected with the idea of establishng such an All-India Medical Institute for purposes of giving adequate postgraduate education in all branches of medicine in the country, as also for providing all possible facilities for medical research therein. Every important country has to be self-sufficient in the matter of education of every kind and it would not be in accordance with the dignity of the country that we may have to depend upon other countries for facilities for such advanced studies though there can be no objection to our young countrymen going to the distant corners of the earth in search of knowledge and experience.

Let me at the outset congratulate the authorities of the Indian Institute of Architects for sponsoring this exhibition. Medical institutions of various kinds have been designed in the different parts of the country by the architects acting on their own. This is the first time however in the history of architecture in the country that competitive designs of an Institute to be built on a large and comprehensive scale, were publicly invited. The Ministry of Health, Government of India, deserves to be congratulated on having decided to invite competitive designs for an Institute which, as I have stated before, would be unique in the history of medical education and research. The result of inviting competitive designs has been indeed most encouraging. As many as 43 designs were submitted by architects from all parts of the country, and I must say that it has brought to light the hidden talent in the profession of which the layman is usually unaware. There is no other means of discovering such talent except through the medium of such open competitions.

If a general view of the important medical institutions existing in the country is taken, it may be said not much attempt has been made in the past to integrate simultaneously the requirements of medical relief, medical education and medical research between the different departments of the Institute as well in the different sections of a department. To enable this to be done buildings had to be completely integrated both physically and organically, providing a high degree of flexibility and the possibility of building by phases at the same time. Provision had to be made in the designs not only for such close integration but also to provide for the extension of any department of the Institute either on its Bed or its Teaching side. These requirements were mutually opposite but at the same time very necessary. A large amount of flexibility was therefore called for in the design of the Institute. Provision had also to be made in the design for protection against the sun and heat, and the best orientation in this regard to prevailing breezes in the city, i.e., Delhi, had to be borne in mind. Provision had also to be made for additional units in the future without affecting the design of the main Institute. In drawing up the programme, these various points had to be considered and I must congratulate the assessors on their success in incorporating all these considerations in the instructions for the guidance of the competitors. Bearing also in mind the advice of the specialists of the different branches of medicine who were invited to help, they were able to frame the programme, clearly stating all the requirements of such a composite Institute ; leaving the competitors at the same time completely free to provide a solution to the best of their judgment and ability, without, on the part of the Promotors or Assessors, any preconceived indication of what lines the competitor should adopt in arriving at their solutions. The competitors were left free to plan for horisontal circulations if they so preferred; freedom was also provided to plan for vertical circulations to the limit of height permitted by the fact that there is an aerodrome in the vicinity. The only consideration was that the design that gave the best over-all result would be accepted; i.e., the design which gave the greatest award of the desired qualities would be preferred. Freedom was also provided at the same time for traditional Indian planning and methods for protection against sun, such as verandahs, chajjas, and pierced screens, or by providing modern methods, such as, sun-breaks, the only consideration being the production of a harmonious and successful result.

I may say that the problem set by the Health Ministry, Government of India, to the assessors was a very difficult and a complicated one. The setting of such a problem laid a heavy burden on competitors and assessors alike. It required each competitor to think absolutely free without any preconceived ideas. The assessors had also to be free from preconceived ideas in their judgment. The designs had to be carefully studied from a single point of view of getting the award suitable to the needs of India, and one that would be suitable to the climatic conditions of that part of the country where it is to be constructed.

The joint assessors deserve to be congratulated for the outcome of their efforts and for their judgment in assessing the award. Though 3 prizes were originally decided to be awarded, thanks to the splendid response from the architects whose handiwork we would shortly see laid out in the form of Exhibition before us, they have thought it right to commend the work of 3 more competitors over and above those 3 who have been awarded prizes. I had the occasion to see the drawings of the designs before the award was given and to indictate the essential features from the medical point of view; and I must say that it cannot be said to be a light task for the assessors to judge looking to the great

variety of designs that were submitted to choose from. The design accruing the first prize is indeed a clean and compact one and of a vertical type and is capable of building within a stipulated cost which was undoubtedly an important consideration where such a costly Institution has to be constructed.

Let me give you here in brief the earlier history of the All-India Medical Institute, Delhi. A committee of senior medical men, experienced in medical administration, medical education and medical research was appointed as early as 1947, when Raja Razanfaralli Khan was the Minister of Health. The purpose of appointing the Committee was to put post-graduate medical education on a proper footing in the country. That Committee, on which I had also the privilege to serve, had recommended the construction of 4 All-India Post-graduate Medical Institutions in different parts of the country—in the east, in the west, in the north and in the south—but in view of the heavy cost likely to be involved, by constructing four such institutes at the same time, the Committee had recommended that the Institute may, in the first instance, be established at Delhi. But as a result of the partition of the country soon after the Committee had submitted its report and the various troubles arising therefrom that followed, including serious financial stringency, the idea of establishing the Institute had to be dropped for the time being. It was however arranged to make efforts to upgrade various medical institutes in different parts of the country and thus facilitate the development of post-graduate education in various institutions, the Central and State Governments sharing cost on 50:50 basis for such development. I am glad to say that this action has already resulted in upgrading certain departments in different medical colleges in various parts of the country. But the establishment of the intended All-India Medical Institute did not seem to be feasible in the near future on account of financial stringency. Had it not been for the funds donated by the New Zealand Government under the 'Colombo Plan' towards the establishment of the All-India Medical Institute at Delhi, it is doubtful if the idea would have at all materialized for a few years more. The total scheme would cost over Rs. 2 crores, being the biggest of its kind to be undertaken in India so far. Let us hope that on the completion of the present project at Delhi arrangements would be made for taking up 3 other projects as recommended by the Post-graduate Medical Education Committee in the different parts of the country already referred to by me.

I trust the design placed first will soon materialize and prove a healthy forerunner of the ones to come in future. I trust more and more such competitions will be held in India not only by the Government Sector but also by the Private Sector so that what is best in the Architect of this country may be got out.

Let me congratulate the competitors who participated in this hard-fought fight and particularly those who have been awarded the first 3 prizes, as well as those three other competitors who have been further commended for the awards.

Let me also take this opportunity of felicitating the assessors for the very difficult and it may even be said to be a thankless task of having to pick up the best from the numerous designs that were sent and for doing their task so impartially. I would warmly congratulate the architects responsible for design No. 13, which has secured them the first place among the competitors. We should have been very happy if an Indian firm of architects had been fortunate in securing that place; but that should not prevent our appreciation of the firm of architects that has been placed first—and rightly placed first; because it was not an easy job to produce a design for such a difficult and complex project as the one for which they competed; and I have every hope that the result will be not only suitable for India but also fit to take its place among the best Teaching Institute of the World.

I would also like to offer my meed of praise to the Health Minister of the Government of India, Rajkumari Amrit Kaur, for the great pains she took in having the work of this Institute put into effect as early as possible, and for encouraging such open competition which naturally meant considerable delay in the execution of the project on which she has set her heart. An idea of an All-India Architects competition was indeed a laudable one and she deserves our best thanks with which she encouraged the idea inspite of numerous difficulties from the various quarters.

It gives me pleasure to declare this Exhibition open.

## NOTES AND NEWS

### 1954 Nobel Prize for Medicine

The 1954 Nobel Prize for medicine has been awarded jointly to poliomyelitis specialists Drs. John F. Enders, Thomas Weller and Fredrick Robbins of the Children's Hospital, Boston, United States.

The prize was worth 181,646 crowns (about 12,527 sterling)—largest amount ever awarded by the Foundation and 6354 crowns (about 438 sterling) more than last year.

Drawn from interest on funds left by Alfred Nobel, former Swedish explosives manufacturer it was awarded to the three Americans for "their discovery of the ability of poliomyelitis virus to grow in cultures of different tissues".

### The United Nations Complete Ten Years

On October 24, the United Nations completed ten years of its existence. During this period, its achievements in the economic and cultural sphere are remarkable. The International Bank's total loan to needy nations up to January 1953 amounted to $1,524,287,000. The International Children's Emergency Fund distributed to 60 million children in 84 nations, food, drugs and medical aid since 1946. Over $55 million worth of technical assistance has also been given to underdeveloped areas through this organisation.

### The Katherine Bishop Harman Prize

The Council of the British Medical Association is prepared to consider an award of the Katherine Bishop Harman Prize in the year 1955. The value of the Prize is £75. The purpose of the Prize, founded in 1926, is

the encouragement of study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child-bearing. It will be awarded for the best essay submitted in open competition, competitors being left free to select the work they wish to present, provided this falls within the scope of the Prize. Any registered medical practitioner in the British Commonwealth and Empire is eligible to compete.

Each essay typewritten or printed in the English language and accompanied by a detachable slip bearing the candidate's name must be forwarded to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C. 1, not later than 31st December, 1954. For entry forms please address the Secretary.

### Ciba Donation for Gerontology Research

The "Ciba Foundation for the Promotion of International Co-operation in Medical and Chemical Research" in London, has decided to donate Rs. 5,000 per year for the next five years for the promotion of research in Gerontology. This money will be used to encourage experimental work of a purely scientific character, for the arrangement of international conferences and lectures on Gerontology and for travelling fellowships.

The Ciba Foundation will award five prizes of about 300 each during 1954-55 for unpublished original works on the basic problems of ageing.

## CORRESPONDENCE

*The Editor is not responsible for any views expressed by correspondents*

### Spurious Trade in Drugs

SIR,—A movement has been recently started in Calcutta to combat the menace of spurious drugs. The Calcutta Corporation and also the West Bengal Government now seem determined to fight this scourge to the core. This is a tremendous task as the dishonest traders are tricky enough to evade detection. Some however have been detected of late. But in our opinion the punishment given to them is light and inadequate as against the mischief they have done to society.

For only the last fifty years or so the Indian manufacturing enterprises in pharmaceutical industry have been earnest to have a legitimate share in the drug trade. Their achievements have been significant as a result of which many foreign patents have had to recede from the Indian market. But even then, the craze remained, particularly with the well-to-do people, to demand foreign products. This psychology of purchasers has helped the growth of this trade in counterfeit products simulating well-established foreign preparations. Our Government have not been able to develop an efficient machinery to investigate into this social crime. In 1940 came the Drugs Act in a great hurry on the model of a foreign legislation. Then in 1945, the Drugs Rules were framed. The enforcement was left to the opportunity, ability and will of the individual provinces. Even now, all the Part A States have not been able to enforce the Drugs Act, not to speak of Part B and C States. So, manufacturers and traders in spurious drugs have sprung up here and there without the least obstruction.

The Pharmaceutical Enquiry Committee, appointed by the Central Government have just completed their survey. Although many eminent persons formed the personnel of this Committee, we doubt very much whether effective and practical suggestions would be available to check the menace of spurious drugs, as not a single person having direct experience in the pharmaceutical industry was included in this Committee. Even then, their views are anxiously awaited as also the policy of the rulers, on the basis of which this highly useful industry has to be shaped before the situation heads towards a greater crisis.

So, when the manufacture and trade in this country are being thoroughly investigated into, I think an intimate collaboration with the persons profoundly experienced in the pharmaceutical industry is desirable in working out the definite *modus operandi* to control the trade in spurious drugs. No preconceived notion against Indian manufacturers nor a highly glamorous estimate of everything produced by foreign manufacturers or their counterparts in India is helpful to touch this problem at the root. It is gratifying to note that such a move has already been started as recently observed in connection with a meeting of manufacturers' representatives, convened under the auspices of the Bengal Chamber of Commerce. I am etc.

Calcutta. S. K. RAY CHAUDHURI.

### Medical Questions in the Assembly

SIR,—For information and comments of the members of the I.M.A. I communicate the following non-official resolutions to be moved in the West Bengal Assembly:

The attention of the Government of State of West Bengal is drawn to the fact that all poisonous drugs, sulpha drugs, antibiotics and biological products are being indiscriminately used by unregistered medical practitioners, and sold by stockists, dealers, agencies of drugs and chemists without the prescriptions duly signed by registered practitioners, as such, the Government are advised to withhold granting license of the above drugs to persons other than registered medical practitioners and duly authorised chemists and druggists.

In view of the growing menace of adulteration of food stuff, invalid diets and unwholesome manufacture and sale of spurious drugs, detrimental to public health, this Assembly is of opinion that the above anti-social activities need immediately complete eradication, for which the Government of West Bengal are requested to take prompt measures to punish offenders through legislation, by fine and imprisonment.

This Assembly desires that the Hospital Health Centre in the urban as well as rural areas of the State of West Bengal be provided with sufficient quantities of antivenom serum for the free treatment of snake bite cases. I am etc.

Ghatal, Midnapur. (DR.) JATISH GHOSH.

## REVIEWS

**The Principles of Exercise Therapy.**—By M. D. Gardiner, M.C.S.P. : G. Bell & Sons Ltd., London, 1953. Pp. 260. Illustrations 193.

It is a book of admirable quality as it has not only laid down the basic principles of exercise therapy but also described the various methods of accepted and other schools. Sketch diagrams have been wonderfully worked out to bring home all points that need clarification.

A joint without power to give movements or *vice-versa* is like an automobile without a steering. Joint stiffness and how to overcome it have been dealt separately for individual joints. Similarly, muscle power development has been considered for individual muscles and that too under assisted, free and resisted groups of exercises. The chapters on posture and neuromuscular co-ordination, group exercises when patients are able to carry out the free and resisted types of exercises have been well written. Indeed, it is felt the book will be very useful to learners.

**Illustrated Review of Fracture Treatment.**—By Frederick L. Liebolt. First Edition, Lange Medical publications; 1954. Pp. 221. Illustrations 605.

The book has been written in considerable minor detail with reference to fractures and is well illustrated with sketch diagrams for the benefit of beginner-students.

Noticeable departure from other books of this nature is dismemberment of associated injuries as of joints, tissues, cord, arteries and soft tissues. Even the slightest incongruence of joint surfaces in fracture—dislocations around the ankle would radically alter the method of treatment and the ultimate prognosis. So, it is customary to lay more importance on joints than isolated hip fractures or ligamentous injuries in these cases and in this way, the student can be made to appreciate the gravity of such fracture-dislocations. Standard accepted methods of treatment have not always been followed in this book. On the above the book cannot be recommended to beginner-students of this country.

**Lehrbuch Der Inneren Medizin.**—By Helmut Dennig. Publisher: Georg Thieme Verlag, Stuttgart, 1954. Pp. 1048. DM 49·80.

The contribution of Henning on diseases of the intestinal tract and digestive system will be most welcome by every reader who appreciates a consistent and clear presentation of diagnosis and pathological physiology of this field of medicine; comparatively less stress is laid on therapeutics. Functional pathology is also the dominant feature of Schaltenbrand's contribution on the diseases of the nervous system which covers a large proportion of the whole book. A section is devoted to clinical toxicology. These main parts of the 2nd volume are supplemented by contribution on diseases of the urinary tract and of the joints and bones. The general remarks on diagnoses and treatment of internal diseases (H. Dennig) are enjoyable to read and contain a good deal of 'clinical wisdom'.

## OBITUARY

### Major General A. C. Chatterji

The death occurred at his Calcutta residence on 17-8-54 of Dr. A. C. Chatterji, former Director of Health Services, West Bengal. He was 63.

After obtaining his medical degree, Dr. Chatterji entered the Indian Medical Service and served during World War I in Egypt and in Mesopotamia. Returning to India at the end of the war, he was transferred to the Civil Department and became the Assistant Director of Public Health in Delhi. He served in that capacity for nearly 10 years during which time he became a Lieutenant-Colonel. Later, he came to Calcutta and joined the Government of United Bengal as Director of Public Health.

When Japan entered World War II, Lt.-Col. Chatterji was transferred to Singapore as Commandant of the Base Hospital there. When Singapore fell, he was taken prisoner. He joined the Indian National Army of Netaji Subhas Chandra Bose and was made a Major-General. He was appointed a Minister in Netaji Bose's Azad Hind

MAJOR-GENERAL A. C. CHATTERJI.

Government and subsequently Governor of Liberated Indian Territories, including the Andamans.

After the War, Dr. Chatterji returned to Calcutta and was appointed Director of Health Services and Secretary to the Public Health Department under the first West Bengal Government.

Dr. Chatterji rendered valuable service for the rehabilitation of former I.N.A. men as Chairman of the I.N.A. Relief Committee. He was actively associated with the National Medical School, Saroj Nalini Dutt Memorial Association and various other public organisations. He founded the Bangiya Silpa Pratisthan, an organisation of East Bengal refugees.

May his soul rest in peace!

# SUPPLEMENT
## Journal of the Indian Medical Association

VOL. 24, No. 4 CALCUTTA NOVEMBER 16, 1954


## 31ST ALL INDIA MEDICAL CONFERENCE, LUCKNOW

The 31st All India Medical Conference will be held in the King George's Medical College, Lucknow on 26th, 27th and 28th December 1954.

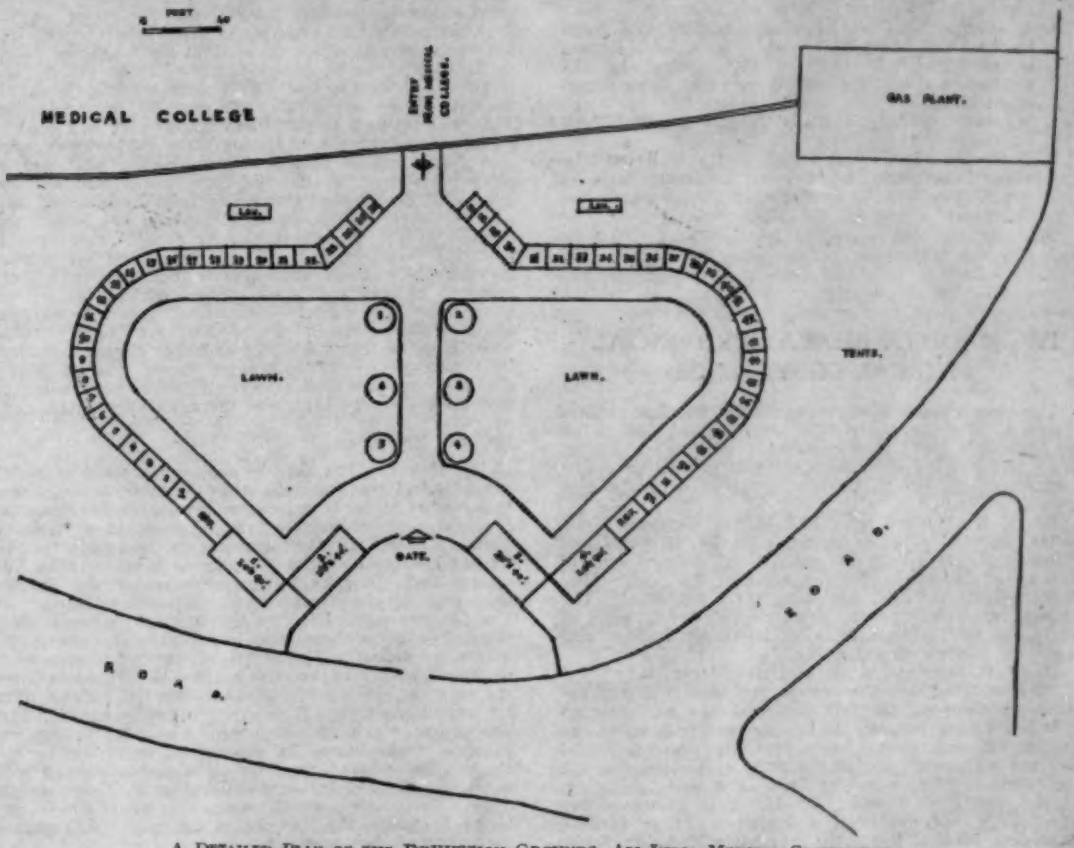
In the *Scientific Session*, Symposia on 'Problems of Cor-Pulmonale' and 'Surgical Aspects of Abdominal Tuberculosis' will be held. Members and others interested are invited to read papers in the Conference. The papers shall on an average be finished in ten minutes to allow proper discussion on the subject. The intimation to read papers should reach Dr. O. P. Tandon, Secretary, Scientific Sub-Committee, Department of Medicine, Medical College, Lucknow by the 6th December, 1954.

A *Souvenir Volume* will be published to commemorate the occasion. It will be profusely illustrated. The rates of the advertisements are as follows :

| | | |
|---|---|---|
| Second Cover (Full Page 9¼" × 7¼") | ... | Rs. 450/- |
| Third Cover ,, ,, | ... | ,, 400/- |
| Last Cover ,, ,, | ... | ,, 450/- |
| Ordinary Full Page | ... | ,, 175/- |
| ,, Half Page | ... | ,, 90/- |
| ,, Quarter Page | ... | ,, 55/- |

The last date for the receipt of advertisements is 20th November 1954.

A *Scientific Exhibition* will be held to depict, through all known means, the uptodate progress of Medical Science, to the members and delegates attending the Conference and other invitees. The various State Governments and the foreign Governments, whose accredited




A DETAILED PLAN OF THE EXHIBITION GROUNDS, ALL-INDIA MEDICAL CONFERENCE

representatives are in this country, have been requested to participate in the Exhibition and to furnish whatever material they can to depict the progress made in this direction in their countries as well. It is expected that all of them will co-operate in this effort. Members are also invited to send charts, models, sketches, diagrams, photographs of interesting clinical cases etc. for display in the Exhibition.

Pharmaceutical and Surgical concerns and those dealing in Scientific Instruments and appliances are cordially invited to participate in the Exhibition. The rates of stalls are as follows :

| | |
|---|---|
| Pavilion : Nos. 1, 2, 3 and 4 (20 ft. x 40 ft.) ... ... | @ Rs. 600/- each. |
| Round Stalls : Octagonal, with 15 ft. diameter Nos. 1, 2, 3, 4, 5 & 6 ... | @ Rs. 400/- each. |
| Stalls Nos. 1 to 25, 28 to 52 (12 ft. x 12 ft.) ... ... | @ Rs. 200/- each. |
| Stalls Nos. 26 and 27 (12 ft. x 12 ft.) | @ Rs. 300/- each. |

Applications for reservation of stalls in the Exhibition and advertising space in the Souvenir should be sent to Dr. M. M. S. Siddhu, General Secretary, Reception Committee, All India Medical Conference, Charbagh, Lucknow.

A concession of 15% in advertisement rates of the Souvenir will be allowed to those who take a stall in the Exhibition.

The conditions attaching to the allotment of stalls are as follows :—

1. The rent will be payable in advance.
2. The stalls will have to be furnished and decorated by the stall-holders. Facilities for hiring furniture at cheap rates will be available.
3. A specified number of electric points and bulb-holders will be provided free. Additional electric illuminations will have to be arranged by the stall-holders at their own cost through the recognised contractor.
4. No extra charge for the electricity consumed will be made.
5. If it is so desired, the staff at the stalls will be allowed boarding facilities at the same rates at which they will be available to the members and delegates attending the Conference.

The last date for receipt of applications for booking stalls for the Exhibition is November 30, 1954.

## IV MADHYA BHARAT PROVINCIAL MEDICAL CONFERENCE

The 4th annual conference of the Madhya Bharat Provincial Medical Association was held at Indore on the 10th July 1954. The conference was well attended. Dr. S. K. Mukerji was the Chairman of the Reception Committee and Dr. B. C. Bose presided over the conference.

Dr. S. K. Mukerji on behalf of the Reception Committee accorded a hearty welcome to the delegates and visitors. In his speech, he referred to the problems of medical education in Madhya Bharat. He said "The undergraduate teaching has been fairly organised. The Post-graduate teaching and research and development of specialities and arrangements for Refresher Courses now need our serious consideration."

Dr. B. C. Bose in his presidential address said :

"Before going into the various problems that confront us today, allow me to state that with the emancipation of India, we are passing through a very great era in the written and unwritten history of India. Any impartial observer will testify that the country is passing through a gigantic revolution in the form of a quiet evolution. During and after World War II, great changes have occurred in every sphere of activity. Be it Medical Education, Medical Research, Preventive Medicine, Social Hygiene, our traditional conception in all these Sciences are undergoing revolutionary changes. The medical problems today are no more isolated ones. They are interrelated and interwoven with many other problems of our society. The quicker we take a note of this fact, better will be result of our effort. As in the field of politics, we have to think in terms of International Economics and other conditions, similarly in the domain of our society we have to think in terms of social economics, standard of education and health, population and many other factors. That is why we have been observing with very keen interest the global planning that is going in every sphere of activity all over the world and I could say with confidence that in our own country, in this new province and in our own medical association, we are not lagging behind in any respect.

### Medical Profession

The Medical Profession all over the world has a long heritage of service and integrity. These, of late, probably due to the bad effects of two Great Wars and consequent rapid socio-economical changes all over the world, are alleged to be undergoing some degree of deterioration. This no doubt is regrettable but nevertheless it must be admitted that yet the sum toal of free humanitarian work done by the profession at large, is far greater than in any other profession. The duty of authorities should be to appreciate these services and that of the Association to tighten up the ethical standards by example and precepts in the very same way as was done by the earlier pioneers of the profession. We are constrained to find that some times almost deliberate propaganda is levelled against the profession at the slightest provocation and this is deplorable. In any free nation *duties* and *rights* go hand in hand and the public is ill advised to be conscious only of the second and forget all about the first. Real statesmanship would lie in appreciating any good work done by the profession. That will act as a stimulus and better work will then be forthcoming from the profession. The medical profession also should realise that no nation-building work can be achieved without a sense of high moral standard and good deal of personal sacrifices. A great sense of duty and service should permeate throughout the length and breadth of the profession and we should more actively associate ourselves with various projects of the country in which help of the profession is required. It is heartening to mention that a free dispensary and medical aid programme have already been started under the auspices of the Indore branch of the Madhya Bharat Medical Association at Manglik where so far 48 clinics have been held and nearly 2,000 patients freely treated during the last one year and a half. It is our aim to extend this work to every branch of the association in future.

### Medical Education

Dr. Mukerjee has already given an account of undergraduate and post-graduate medical education programme that we are trying to implement in our medical colleges. I would not therefore reiterate this aspect of the problem. I would only like to mention that the provincial Medical Association has to play a great role in this matter also. Thanks to the initiative of the Association and of the Government, Refreshers Course has already been started in the two Medical Colleges and a small number of licentiates have been undergoing this course at present. The scope of this work has to be increased and very shortly a time should come when not only the Government servants but the bulk of general practitioners should be able to derive benefits from this course which will improve the standard of medical practice in the State. In due course we should be able to start Refreshers Course for other categories of technical staff, required for medical and health work in the State. There are several other aspects of these problems in which the Association can play an important part through our meetings.

During my recent visit to the United States I was pleased to go into the range of activity of the American Medical Association in that country and compare the same with ours. Their members along with the medical educationists, had launched a medical education survey work in U.S.A. and Canada in 1951. Their beautiful findings form the basis of an instructive publication on medical education in U.S.A. and Canada published in two parts in 1952-53.

The American Medical Association also plays an important part in moulding the policy of medical education in the States. In co-operation with the State Medical Service and the University, it has made it instrumental in very many ways in shaping the destiny of the profession at large. In 1951 they launched a programme for collection of 5 million dollars and by now they have already collected 3 million dollars which are being utilised for supplementing the budget of various medical institutions and in giving the fellowship and research grants to students. Here is a good project for our association to undertake. I would strongly urge that we should take up some such constructive work in hand which would bring credit to our Association.

### Pharmacy and Drugs Act

Thanks to the efforts of this Association and the Government, the Medical Registration Act has just been passed and will shortly be in force in the State. I only wish that its implementation is properly done so that the public at large can get proper medical aid from suitable person. In any constructive work it is not the quantity which actually matters. I am on the other hand a firm believer in quality of work. Consistent with this policy even if our progress is somewhat slower in the beginning, I am sure in the long run our achievement will be a substantial one and in that case we will not be unleashing any spurious force which will have to be withdrawn again at a later date. The function of Medical Registration Act wll exactly be of this nature.

There is another important subject which has been drawing our attention during the past few years. I am referring to the *"Pharmacy and Drugs Act"*, which is in the process of being passed and thereafter enforced in this State. This is a very vital subject and deserves early consideration of the Government as well as of the medical profession at large. Many of you are aware that due to general slackness in morals and increasing profiteering motives, spurious drugs in increasing number are coming into the market and are also being dispensed. We have to view this point with very great concern and take early precautions for remedying this lurking evil. After World War I there has been an incentive for drugs manufacturing work all over the country. During World War II a greater stimulus was given and very many small concerns are springing up every day which finding it difficult to compete with established and standard firms, are trying to supply articles of cheaper quality and rates. It is a common knowledge of doctors and chemists who use and test drugs, that there are a good number of understrength and even spurious drugs in the market. This is a very serious problem and is hoped to be eliminated after the Drugs Act has come into force in an effective manner. Here again I should reiterate that though a vast country like India, has no doubt, need of quantity but that should never be at the expense of quality. If necessary we should make a slower beginning and gradually increase the quantity in a planned manner for meeting with the needs of the country in a period of 10, 15, 20, or 25 years. The existing Drug Industry in India is capable of reaching this target in a period of 25 years if by changing their existing motive of easy profiteering, they organise the programme of development of this industry in a planned manner namely—organisation of heavy and fine chemical industries, solvents, preparation of galenicals, more complicated pharmaceutical products, synthetic drugs, antibiotics etc. I am glad to mention that considerable progress has already been made in the country in this direction in recent years.

### Organisation of District Hospitals and Rural Dispensaries

The medical curriculum has recently been revised by the Indian Medical Council and it has now been decided that the medical students will have to undergo a period of one year's internship on completion of their four and half years' study, before they can get their diplomas. This revision aims at bringing the medical student in closer contact with rural health conditions and problems. This will also give them wider clinical experience before they are allowed to practise medicine. There is no doubt that this will help us in mobilising greater number of doctors for rural medical relief but it also implies that the standard and organisation of these dispensaries, district and military hospitals will also have to be considerably improved so that the student can learn and practise correct medicine from those places. I would request the State Government to bear this point in mind and continue improving the condition of district hospitals and dispensaries both in equipment as well as by appointing suitably qualified personnels.

Dr. B. C. Bose, The President of the Conference.

### Popular Health Education Programme

This is a problem in which I think the medical personnel can play a very important role. The Indore Branch of the Association has taken up this programme since last year but the work has to be greatly intensified and similar work also started from other branches of the Association. If we carefully go through the Five Year Plan of U.S.S.R. we observe that much progress in public education and health was achieved in that country through radio, popular lectures, and night classes. It is possible to do effective work in mass health education, social hygiene and family planning if we can launch a well thoughtout programme on these lines.

### Membership Drive

There is another problem which will deserve the consideration of the Association actively during the ensuing session. The medical profession in Madhya Bharat is a fairly well organised body and is working with great team spirit all these years. There are over 700 doctors in the State and nearly 400 of them are members of our Association. It will be our effort to

increase the strength of our membership this year and bring most of them in our fold if possible.

FUTURE PLAN OF WORK

Ladies and Gentlemen! I have already taken much of your time. I should now conclude by outlining the programme of our work for the current year as under :—

1. A duly planned membership drive and opening of additional branches in the State.
2. Starting of inter-branch scientific discussions at least 2-3 times a year with a view to interchange ideas, disseminate better scientific knowledge and create enthusiasm for work in various branches of the Association.
3. Intensify our programme of popular lectures, health education and family planning programme.
4. Collection of funds for rendering educational and research grants to the deserving medical students.
5. Create better spirit of fraternity and medical ethics.
6. Create better spirit for service and help the Government in their uphill task of better health and medical aid programmes for the nation.

I know that the target is high but I am sure that with the full co-operation of the Profession at large and the Government always on our side, we should at least be able to make a good start in these directions this year."

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*RESOLUTIONS PASSED AT THE CONFERENCE*

1. The Conference thanks the Government for incorporating on its statute-book the "Registration of Medical Practitioners' Act". The Association, through its Provincial Conference today, urges the Government to take immediate steps now to set up the Provincial Medical Council. The Conference also requests the Government that the Association should be consulted and suggestions invited before announcing the names of the members who would be nominated by the Government for the first term. Consultation with this Association in the matter of nomination to the Council will not only make the Council of a truly representative body, but would also inspire the confidence of the profession and of the people and thereby enable them to co-operate with the Government truly and effectively.

2. The Conference resolves to request the Government, the Agra University and Indian Medical Council for an extension of the "Condensed M.B.B.S. Course" for a few years more to enable the remaining licentiates to take up the course and obtain their degrees.

3. This Conference re-iterates the resolution passed by it in the year 1953, at Gwalior, to impress upon the Government the following matters :—

1. That the pay-scale of licentiates in Madhya Bharat is low, as compared with the scales operating in the rest of this country; that this scale should be raised so as to bring it in line with the normal scales of pay, operating elsewhere.
2. That the glaring disparity between the salaries drawn by members of the service, previously belonging to the various Conventing States, be adjusted by giving advance increments according to length of service, with a view to ensure uniformity and consistency between the salaries drawn by doctors who have put in several years of service and those who have newly joined.

It is therefore, urged that due weightage should be given for their length of service and they should be given suitable increments so that majority of them may reach the maximum of the grade, *i.e.* Rs. 200/- at the time of retirement.

4. The Conference hereby resolves to represent to the Government that in the matter of the proposed 'Health Insurance Scheme', the principle of "Panel System"—which is being introduced in Bombay—should be recognised and adopted. Experience has proved that the 'Panel System', wherever prevalent, is better suited to make the 'Health Insurance Scheme', an efficient instrument of service to the public. Further it is resolved that licenciate doctors also should be employed in the scheme as is prevalent in other parts of India.

5. The Conference hereby resolves to reiterate the resolution passed in 1950, and requests the Government to take immediate steps to bring into force the "Drugs and Pharmacy Acts", as such step alone can and will prevent the exploitation of the public, by those who propagate, advertise and freely circulate, spurious drugs—often of a dangerous type—into the market. The impunity with which this is being done calls for immediate and drastic action.

6. The Provincial Conference of the Madhya Bharat Medical Association hereby unanimously resolves to convey its sense of gratitude to the Government for their decision in exempting, from levy of Sales Tax the Dispensing of mixtures by medical practitioners in their dispensaries to their own patients from 1-1-54, and further requests the Government to make necessary amendments as making this exemption retrospective in effect from 1950.

## BRANCH NOTES

**AMBALA CITY BRANCH**—An annual function of this branch was held on 16th and 17th October, 1954 under the presidentship of Dr. K. Kumar.

The following papers were read on 16-10-54.

1. Eat to reduce by Dr. A. N. Deva.
2. Diagnosis of Acute Abdominal Pain by Dr. P. A. Paul.
3. Aesthetic Aspect and Nutrition by Dr. B. D. Kocher.

The following papers were read on 17-10-54.

1. Glaucoma by Dr. Hari Dass.
2. Treatment of Cancer by Dr. M. L. Aggarwal.
3. Virus Encephalites by Dr. Mathur.
4. Pneumo Peritoneum by Dr. K. Kumar.
5. Manifestation of Amoebiasis by Dr. M. Balasubrahmanyar.

The following were elected office bearers for 1954-55.

1. President—Dr. H. L. Gupta.
2. Hony. Secretary—Dr. O. P. Verma.

**AMRELI BRANCH**—The annual meeting of the branch was held on 13-9-54. Office bearers for the year 1954-55 were elected with Dr. N. V. Adalja as president and Dr. M. S. Bhatt as Secretary. The annual report shows that 12 meetings were held during the year. Clinical subjects were discussed in some of these meetings.

**ANANTAPUR DISTRICT BRANCH**—The annual general body meeting of the branch was held on 18-9-54 with Dr. D. Ramanath in the chair. Office bearers for the year 1954-55 were elected with Dr. D. Ramanath as president and Dr. V. K. Rajaram as secretary. The annual report for the year 1953-54 and the statement of accounts were approved. The secretary was requested to send Rs. 100/- towards the Medical Relief Fund of I.M.A. Dr. V. K. Rajaram demonstrated a case of Tuberculous Uveitis of the left eye of a girl, a case of Kerato-conjunctivitis and a case of Pituitary Tumour. Dr. K. Raghavendra Rao spoke on "Diagnosis of Fever".

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The annual report of the branch for 1953-54 shows an increase of membership by 7. During the year only 5 meetings were held. In the clinical meetings, Dr. K. Raghavendra Rao spoke on Varicose Veins, Dr. Brahmaji Rao on minor maladies of Ear, Nose and Throat. Dr. P. Thirumal Rao on Well Baby Care and Dr. Mohammad Jaffar on Management of Fractures of Femur.

**ASSAM STATE BRANCH**—A meeting of the working committee of the branch was held on 18-9-54 with Dr. (Mrs.) T. Raichoudhuri in the chair. Nine members were present. The house accepted the invitation of the Shillong Branch to hold the 0th Assam Medical Conference. The secretary, Assam Medical Relief Committee, informed the house about the receipt of contribution of Rs. 500/- from the Centre of the I.M.A. and Rs. 10,000/- from the Governor's Relief Fund for working of the Assam Medical Relief Committee.

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The Tea Garden sub-committee of the branch in its report reviewed the position of the Tea Garden Doctors. The committee recommended that the doctors should enjoy the status of the garden junior officers. There should be fixed hours of routine duty in the in-patient and out-patient departments. Leave should be given similar to that granted to Asst. Garden Officer. Study leave should also be granted. Non-practising compensatory allowance should be granted to them.

**BAHRAICH BRANCH**—A meeting of the branch was held on 6-7-54 with Dr. G. P. Srivastava in the chair. Fifteen members were present. Dr. D. Gupta demonstrated further 3 cases of Intestinal Obstruction of the series already demonstrated. Dr. H. S. Prasad, District Medical Officer of Health, a founder member of the branch was given a hearty farewell on his transfer from the district.

**BANGALORE BRANCH**—Activities of the branch for the period from May to August 1954 are detailed below : On 19-5-54 an Executive Committee Meeting of the Branch was held under the presidentship of Dr. C. V. Natarajan. It was resolved to conduct Refresher Course with Dr. M. Kothandaram as the convenor. On 25-5-54, Dr. M. Sivaram delivered a lecture on the proposed Medical College at Bangalore. Dr. B. N. Balakrishna Rao presided. 61 members were present. On 9-6-54, a meeting of the Refresher Course Committee was held to discuss matters relating to Refresher Course. On 22-6-54 an Executive Committee Meeting was held under the presidentship of Dr. C. V. Natarajan. On 26-6-54, Dr. M. N. Mahadevan gave a lecture on Pre-Cordial Pain. Dr. B. Venkatasubba Rao, Superintendent, Victoria Hospital, presided. 57 members were present. A General Body Meeting was held on the same date and it was resolved to receive nominations from members for the posts of presidents and Vice-presidents for central and State Offices for the year 1954-55. On 3-7-54, Dr. N. F. Lolanwala, Physician, KGF Hospital, Champion Reefs, gave a lecture on Infective Hepatitis. Dr. L. R. Sharma, Physician, Bowring and Lady Curzon Hospitals presided. 79 members were present. On 21-7-54, an Executive Committee of the Branch was held and Dr. C. V. Natarajan presided. Names were nominated for the posts of President and Vice-president for State Office for 54-55. It was decided to hold the Annual general body meeting on the 4th September and an outing to Thippagondanahalli the next day. It was further resolved that regarding Employees State Insurance Scheme this Branch will fall in line with the State branch and Central Association. On 17-7-54, Dr. S. R. Rajaram of Salem gave a very interesting lecture on Cardiac Syndrome in Amoebiasis. Dr. L. R. Sharma presided. 45 members were present. From 26-7-54 to 6-8-54, Refresher Course was conducted. Daily lectures and demonstrations were given by eminent doctors in the morning and evening. 48 members attended. On 20-8-54, an Executive Meeting of the branch was held under the presidentship of Dr. C. V. Natarajan.

**BARNAGORE BRANCH**—A meeting of the working committee of the branch was held on 20-8-54 with Dr. R. B. Dutta in the chair. A special committee was formed to start a chest clinic for the locality.

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The annual meeting of the branch was held on 3-10-54. The annual report shows that 2 clinical meetings, 4 working committee meetings and 1 general meeting were held during the year. Office-bearers were elected with Dr. R. B. Dutta as president and Dr. N. C. Sanyal as Hony. Secretary.

**BELLARY BRANCH**—The annual report of the branch for the year 1953-54 shows that all the members of the medical profession of Bellary (excepting three) are enrolled as members. Majority of the members complained of non-receipt of the Journal. Eleven meetings including clinical meetings were held during the year.

**BIHAR SHARIF BRANCH**—The annual meeting of the branch was held on 2-9-54. Office-bearers were elected with Dr. Rit Lal Pd. Verma as president and Dr. Aziz Ahamed Khan as Jt. Secretary.

**BOKARO BRANCH**—A meeting of the branch was held on 27-8-54 with Dr. S. N. Banerjee in the chair. The meeting recommended abolition of annual general meeting in annual provincial conferences and advocated introduction of annual meeting of the council members in future.

**CALCUTTA BRANCH**—A meeting of the executive committee of the branch was held on 8-6-54 with Dr. N. K. Munshi in the chair. Twenty-three members were present. Sixteen new members were admitted. The President, Hony. Secretary and 3 other members were requested to meet the Mayor of Calcutta Corporation and discuss with him the menace of spurious drugs. The central office was requested to cancel the circular of 18-5-54 from the Editor, J.I.M.A. Dr. Some Nath Bose was elected a representative of the branch on "Dr. M. N. Chatterjee Memorial Eye Hospital".

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A special meeting of the Executive Committee of the branch was held on 15-6-54 with Dr. N. K. Munshi in the chair. Twenty members were present. With reference to the Presidency Magistrate's observation regarding the behaviour of a doctor, and the time to time allegations against the members of the medical profession an enquiry committee was formed to make a study of the situation with 18 members with powers to co-opt.

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An emergent meeting of the executive committee was held on June 24, 1954 with Dr. N. K. Munshi in the chair. Twenty members were present. The suggestions of the Mayor and the Deputy Commissioner, Enforcement Branch were discussed and the Committee's observations were made, for communication to them. It was decided to ask for a copy of the proposed legislation regarding the Food Act and the Drugs Act from the Mayor. It was decided also to approach the Deputy Commissioner of Police, Enforcement Branch for fixing a date for exhibition of up-to-date method of detecting spurious drugs and a film on Khunir Cheyo Aparadhi. Dr. Probhat K. Banerjee was elected to represent the association at the Conference of the Association of Scientific Workers.

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A monthly meeting of the executive committee of the branch was held on 13-7-54 with Dr. N. K. Munshi in the chair. Twenty-eight members were present. The meeting condoled the death of Dr. Premankur De. Seven new members were enlisted. The reports of the sub-committees were read and recorded. The meeting was adjourned till 20-7-54.

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The adjourned meeting of the branch was held on 20-7-54. Twenty-four members were present. Dr. Salil Dutt was elected to the Telephone Advisory Committee. Members were requested to send the forms for the National Register duly filled in. A special committee with 7 members was formed to deal with the question of Indian doctors in Burma.

**CHETTINAD BRANCH**—A meeting of the branch was held on 31-7-54 with Dr. A. Jabbar in the chair. Dr. H. L. Wallden of the Swedish Mission Hospital, Tiruppatur spoke on "The Deep Pouch of Douglas and its clinical manifestations". Later there was a film show on "Life Cycle of the Malarial Parasite".

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A meeting of the branch was held on 28-8-54 with Dr. S. Subramaniam in the chair. The election of the president and 3 vice-presidents took place.

**CHITALDROOG BRANCH**—Annual meeting of the branch was held on 21-8-54. Dr. D. Shamanna presided. Interesting case reports on Rheumatoid Arthritis by Dr. M. Rajeswari, Nephrosis by Dr. S. R. Basappa, Quinine Amblyopia by Dr. Srinivasan and Fibrosarcoma of the foot by Dr. G. Eswarappa were read and discussed.

**COCHIN BRANCH**—On 23-10-53, an ordinary meeting was held. Dr. (Mrs.) Rema Bai A. Bhat read a paper on "Mediastinal Adenitis".

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On 26-11-53 an ordinary meeting was held. Dr. P. M. George gave a talk on "His Impressions of the Recent Foreign Tour".

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On 7-12-53 an ordinary meeting was held. Demonstration of clinical cases by Drs. M. A. Paul and (Miss) Blossom Simon was done.

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On 6-2-54 an ordinary meeting was held. Dr. S. B. Rao spoke on "Chemical Research and Clinical Medicine".

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On 25-2-54 an ordinary meeting was held. Dr. Rudolph Reitler, Director, Government Laboratories, Haifa, spoke on "Susceptibility to Haemophilus Influenzae in Correlation to the Age Factor".

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On 12-3-54 an ordinary meeting was held. Dr. P. K. Raghava Warrier spoke on "Hypochondriac Swellings".

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On 3-4-54 an ordinary meeting was held. Dr. Alice Thomas, Lecturer in Gynaecology and Obstetrics, Lady Hardinge Hospital, Delhi spoke on "Family Planning".

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On 12-6-54 an ordinary meeting was held to give a most befitting send-off to Dr. C. M. Joseph, Hony. Joint Secretary of this Branch on the eve of his departure to Burlington Hospital, Mount Holly, New Jersey, New York (U.S.A.) and to Capt. B. M. Ambadi, on his appointment to the Medical College, Trivandrum.

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On 26-7-54 an ordinary meeting was held. Demonstration of interesting and important clinical cases was made by Capt. M. A. Urumese.

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On 28-8-54 an ordinary meeting was held. Dr. V. J. Paul, Maharaja's Hospital spoke on "Common Dyspepsias".

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On 13-9-54 an ordinary (annual) meeting was held to elect office-bearers for the year 1954-55.

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On 27-9-54 a special meeting was held to elect President and Vice-Presidents to the I.M.A. for the year 1954-55. Interesting cases were demonstrated by Drs. K. J. Abraham and P. B. Philip.

**COIMBATORE DISTRICT BRANCH**—A meeting of the branch was held on 22-7-54 with Dr. P. N. Ramaswamy in the chair. One hundred and twelve members were present. Lt. Col. Sangham Lal, the Director of Health Services, Madras, referred to the proposed introduction of the E.S.I. Scheme in Coimbatore and said that 40 to 50 additional beds would be provided in the Government Hospital with its introduction.

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A meeting of the branch was held on 31-7-54 with Dr. P. N. Ramaswami Naidu in the chair. Seventy-five members were present. The meeting requested the Government to exempt the Sales Tax on sales of medicines to the patients in the clinics. The president introduced to the members, Sri V. V. Giri, Union Minister of Labour and Sri V. R. Natesan, the Regional Director. Sri Giri appealed to the members to see that E. S. I. Scheme becomes successful in Coimbatore.

**DEORIA BRANCH**—A meeting of the branch was held on 29-8-54 with Dr. S. C. Acharya in the chair. Dr. C. M. Mukerji demonstrated a case of Grave's Disease and another of Syphilitic Gumna.

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The annual general meeting of the branch was held on 16-10-54 with Dr. S. C. Acharya in the chair. Twelve doctors were present. The annual report was adopted. Office bearers for 1954-55 were elected with Dr. S. C. Acharya as president and Dr. B. P. Mahendra as secretary and Dr. R. M. Singh as joint secretary.

**DHANBAD BRANCH**—The annual meeting of the branch was held on 3-10-54. After the routine business was over, office bearers were elected with Dr. (Major) H. C. Mallick as president and Dr. (Capt.) S. C. Maitra as Hony. Secretary and Dr. A. M. Roy, Dr. S. Das Sarkar, D. B. N. Bhattacharya, Dr. R. Prasad as joint secretaries.

**ERODE BRANCH**—The Association was at home to Minister Sri A. B. Shetty. The following points were mentioned in the memorandum, (1) Early building of a new hospital, (2) appointment of one more paid and one hony. surgeon to the existing hospital, (3) to convert the present hospital into a nucleus for training general practitioners in surgery, (4) preference to children of doctors in the matter of admission to medical colleges.

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The annual meeting of the branch was held on 3-7-54. Seventy doctors were present. Dr. R. Subramanian spoke on Ascites and its Management. Dr. R. Kalamegham spoke on "Preliminary Treatment of Intestinal Obstruction."

**EAST GODAVARI DISTRICT BRANCH**—A meeting of the branch was held on 31-7-54 with Dr. K. Chandrarao in the chair. Dr. Sanyasiraju presented his third article on Pulse. Dr. R. Venkataraju discussed "Fracture of Patella". Dr. Chandrarao demonstrated 2 cases of operated petalla with skiagrams. Dr. Imaduddin cited 3 cases of same from his experience. Dr. Imaduddin next took up the subject of Amoebiasis complicating abdominal and thoracic surgery. Dr. Rajiswari spoke on Functional Uterine Bleeding. Dr. Jagannadham read the report of a case of Temporal Lobe Abscess.

**FAIZABAD BRANCH**—The annual meeting of the branch was held on 18-9-54 with Dr. Pratap Bahadur in the chair. 12 meetings of regular section and 10 meetings of scientific section were held. Dr. Y. D. Kapur were re-elected secretary for the year 1954-55. There was a slight gain in membership and the finance was quite satisfactory.

**FORBESGUNJ BRANCH**—The annual general meeting of the branch was held on 12-9-54 with Dr. H. N. Sarbadhikary in the chair. The Annual report of the hony. secretary with statement of accounts was adopted. The report shows an increase of membership to 20. Office bearers were elected with Dr. T. N. Saha as president and Dr. S. N. Das Gupta as secretary.

**FEROZEPORE BRANCH**—A clinical meeting of the branch was held on 14-9-54, with Dr. Raja Ram Bhola in the chair. Dr. H. B. N. Swift, Director General, Civil Hospital, requested doctors to extent utmost sympathy to the patients. Dr. Miss J. K. Arora of Francies Newton Hospital spoke on a case of Hydrated Cyst.

**GHUGADANGA BRANCH**—A meeting of the branch was held on 22-8-54 with Dr. S. S. Sarkar in the chair. Fifteen members were present. The place, time and date were fixed for the annual general meeting.

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The annual meeting of the branch was held on 19-9-54 with Dr. P. B. Ghose in the chair. Fourteen members were present. The secretary's report and accounts for 1953-54 were adopted. Office bearers of the year 1953-54 were re-elected for 1954-55. The annual report of 1953-54 shows a slight fall in membership. Three monthly meetings and 2 executive committee meetings were held during the year. Scientific papers by eminent doctors were read in clinical meetings. The branch took an active part in opening an outdoor chest clinic in the locality. The building for this clinic is in progress.

**GIRIDIH BRANCH**—A meeting of the branch was held on 13-9-54. Eleven members were present. Members were requested to donate to the medical relief in flood areas in response to the president's appeal. A sub-committee was formed to consider changes in the rules of the branch. The members were in favour of abolition of Annual General Meetings of the State Branch. The members were requested to help in the membership drive.

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The annual general meeting of the branch was held on 10-10-54 with Dr. H. C. Chatterjee in the chair. Fifteen doctors were present. The annual account was adopted. Office bearers were elected with Dr. S. N. Hussain as president and Dr. A. B. Das Gupta as hony. secretary.

**GURGAON BRANCH**—A meeting of the branch was held on 26-9-54. Dr. S. Singh presided. Thirteen members were present. The Punjab State Branch was requested to take up in right earnest the question of prohibiting practice by quacks. It was arranged that members should pay subscription every 4 months. Appeal was issued to members for contributing to the flood relief fund.

**HUSSAN BRANCH**—The annual meeting of the branch was held on 4-9-54. Thirtyone members were present. Secretary's report and accounts were adopted. Office bearers were elected with Dr. F. P. Mascaronhas as president and Dr. H. N. Venkataranjiah as secretary. The following subjects were discussed, (1) A case report of Meningitis by Dr. N. Ramaswami, (2) Rural Health by Dr. N. Rao.

**HUBLI BRANCH**—The annual report of the branch for the year 1953-54 shows that during the year 11 regular meetings 2 special meetings and 1 condolence meeting were held. The membership position has slightly increased. The financial position is satisfactory. An up-todate library is being maintained. Two lectures on clinical subjects were arranged during the year. Rajkumari Amrit Kaur, Union Health Minister and Drs. H. N. Cooper and R. G. Dayagudi of Bombay and the Surgeon General of Bombay paid visits to this branch.

**JAGATDAL BRANCH**—A meeting of the branch was held on 13-8-54 with Dr. S. C. Bhattacherjee in the chair. The members unanimously agreed to offer their help and co-operation in the B.C.G. campaign.

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A meeting of the branch was held on 27th August, 1954. Dr. S. C. Bhattacherjee was in the chair. Prof. K. K. Ghose, Prof. of Surgery, Medical College, Calcutta, spoke on "Differential Diagnosis and Management of Acute Abdominal Conditions".

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The annual report of the branch shows a slight fall in membership. Four executive committee meetings and five clinical meetings were held during the year. The members offered active co-operation for the success of the BCG campaign. The branch also co-operated with the medical sub-committee of the Indian National Congress held at Kalyani. Office bearers for the year 1954-55 were elected with Dr. S. C. Bhattacharjee as president and Dr. P. N. Ghose as hony. secretary.

**KANDI BRANCH**—The annual general meeting of the branch was held on 19-9-54 with Dr. R. G. Das in the chair. Office bearers were elected with Dr. R. G. Das as president and Major S. Ghosh as Secretary.

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The annual report of the branch for the year 1953-54 shows that 9 meetings were held during the year. In the clinical meetings Dr. P. R. Roy spoke on common eye diseases and their management, Dr. S. S. Das on some important facts on Acidity in General Practice, Dr. B. N. Shaha on Liver Abscess, Capt. P. N. Shaha on (1) Infantile Cirrhosis of Liver and (2) Infantile Diarrhoea and Major S. Ghosh on (1) Incidence of Eosinophilic Lungs at Kandi and (2) Malaria Control. Members participated in the 4th T. B. Seal Sale Campaign. The financial position is sound.

**KANPUR BRANCH**—Under the presidentship of Dr. S. Sen, the members discussed the enhanced rate of D.D.T. It was decided to send a deputation to the Administrator of Municipal Board to discuss the matter along with other medical problems of the city.

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A meeting of the branch was held on 1-8-54, to express sorrow at the sad and sudden death of Dr. K. C. Upadhya, a member of the association.

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The members of the branch discussed the new disease that was causing sudden deaths in children. It was opined that quick medical aid with repeated lumber punctures and administration of fluids like plasma and veristonn along with Antibiotics can tide over the disease.

**KARNAL BRANCH**—In a meeting on 25-10-54, office bearers were elected with Dr. Nirmal Parkash as President and Dr. Lok Nath as Secretary. The present membership is 23. Twelve meetings were held during the year. Five papers were read in the clinical meetings.

**KISTNA DISTRICT BRANCH**—A meeting of the branch was held on 25-4-54. Dr. N. Devadoss was in the chair. Dr. Devadoss spoke on Artificial Pneumothorax. Dr. K. V. R. Sastry read a paper on Tuberculosis in Aurveda. Dr. K. Sithapati Rao read a paper on Salicylotes in Tubercular Lymphadenites.

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A meeting of the branch was held on 11-1-54. Dr. G. T. Reddy presided. Dr. Reddy opened a symposium on Peptic Ulcer. Dr. P. Arjuna Rao spoke on Pathology of the condition. Dr. K. V. Raghavan spoke on Radiological aspect of it. Drs. K. V. Sastry, P. S. Giri, T. S. Rao, K. S. P. Rao, J. V. R. Sarma participated in it.

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A meeting was held on 29-8-54 with Dr. M. N. Rao in the chair. Dr. T. T. V. opened a symposium on Cardiac Emergencies. Drs. A. Narayan Rao, N. Rama Rao, A. S. Sarma, P. S. Giri, B. V. Ranga Rao of Bezwada Medical Association and Dr. N. S. Rao participated in it. Certain films about the All India Medical Conference, Hyderabad were shown.

**KOHLAPUR BRANCH**—On 30-6-54, Dr. T. Madhav Pai from Udipi visited the branch and discussed about the idea of opening a medical college at Kolhapur. On 3-7-54 Major General Thorat paid a visit to this branch. On 30-7-54 a clinical meeting was held. Dr. Desai from Sangli read a paper on "Cerebral Vascular Accidents".

On 21-8-54 a milk centre for supplying milk, free of charge to the weak and debilitated children under 12 years of age, was started. On 27-8-54 a clinical meeting was held. Dr. Mrs. D. Farmer spoke on "Abdominal Emergencies".

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A meeting of the managing committee of the branch was held on 3-10-54. Office bearers were elected with Dr. B. B. Rashingkar as president and Dr. G. S. Mirje as hony. secretary.

**KOTHAGUDIAM BRANCH**—A clinical meeting of the branch was held on 14-5-54, with Dr. T. C. Ramchandani in the chair. Dr. J. N. Samadder gave a talk on some laborntory tests, their interpretations and falacies. He also demonstrated the use of 'Terramycin' diagnostic test.

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A clinical meeting of the branch was held on 25-6-54, when Dr. S. V. Ghurye gave a talk on 'Haemorrhagic diseases and diathesis'. This was followed by an interesting review on anuria

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A clinical meeting of the branch was held on 16-7-54, when Dr. I. Kuppuswamy reviewed two cases of fracture spine, one at the cervical region and the other over the dorsal region.

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A clinical meeting of the branch was held on 23-7-54, when a symposinm on Buerger's disease was scheduled. Dr. S. Vaidyanathan initiated the symposium with a talk on Thrombo Angitis Obliterans.

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A clinical meeting of the branch was held on 30-7-54. The symposium on Buerger's disease was continued. Dr. (Mrs.) Eshwari Kuppuswamy read a case report on Thrombophelebitis. Dr. S. V. Ghurye gave a talk on anatomy and physiology of autonomic nervous system and also dealt about the drugs which augment and inhibit their action.

Dr. J. N. Samadder gave a talk on the anticoagulant drugs and their mode of action.

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A General Body meeting of the branch was held on 27-8-54, with Dr. T. C. Ramchandani in the chair.

There was a review of two fatal cases (1) due to gastric perforation (2) perforation of ascending colon due to amoebic dysentery.

The case records were read by Dr. I. Kuppuswamy. Skiagrams were interpreted by Dr. B. K. De, and the post-mortem appearances and pathological specimens were dealt with by Dr. J. N. Samadder.

There was a final summing up of the cases by Dr. T. C. Ramchandani.

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A clinical meeting was held on 3-9-54, when two cases of (1) Biliary fistula successfully operated and (2) perforation of intestine, operated and later developed into faecal fistula which was repaired by Dr. T. C. Ramchandani, were reviewed. The case records were ready by Dr. I. Kuppuswamy and X-rays interpreted by Dr. B. K. De. Dr. Ramchandani made a final summing up of the case notes and explained the various steps of the operation in each case in detail.

**MADHYA BHARAT PROVINCIAL BRANCH**—A meeting of the Working Committee and the Central Council of the branch was held on 10-7-54. Twenty members were present. Dr. B. C. Bose and Dr. R. A. Bhagwat were declared to be elected as president and secretary of the branch respectively.

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A meeting of the Working Comimttee and Central Council was held on 11-7-54 with Dr. B. C. Bose in the chair. Twenty members were present. A committee with 6 members was formed to consider (1) The Rural Health Scheme (2) Practitioners' Roll in implementing Health Schemes (3) Five Year Plans of Government (4) Village Uplift (5) Village Sanitation, and submit the report in a month. Another committee was formed to consider the recognition and registration of Maternity and Nursing Homes.

**MADRAS BRANCH**—An executive committee meeting of the branch was held on 30-7-54. Fourteen members were present. Dr. P. Natesan presided. Ten new members were admitted. The routine business was transacted.

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An executive committee meeting of the branch was held on 26-8-54. Thirteen members were present. Dr. P. Natesan presided. Five new members were admitted. It was decided to wait on the Health Minister, Government of Madras to procure the plot of land on the Poonamalle High Road.

**MADRAS STATE BRANCH**—From October 1, 1954, the name of the Association "South Indian Provincial Branch" has been changed into Madras State Branch and the existing rules have been amended.

**MADURA BRANCH**—A meeting of the branch was held on 26-6-54, with Dr. A. S. Annamalai in the chair. Seventyeight members were present. Dr. T. Thomas delivered his lecture on Surgery of the Heart and Great Vessels. With the aid of epidiascopic pictures he gave a short and practical survey of the various conditions like injuries of the heart, valvular lesions, tetralogy of Fallot etc.

**MALABAR BRANCH**—A meeting of the branch was held on 3-6-54. Dr. C. K. P. Menon, Prof. of Surgery, Andhra Medical College, spoke on "Some Abdominal Emergencies".

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A meeting of the Branch was held on 31-7-54 with Dr. P. B. Menon in the chair. At the outset the meeting condoled the death of Dr. M. Sundaram and Dr. N. Achuthan. Dr. Kalyanaraman spoke about "Abdominal Pains".

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A meeting of the branch was held on 16-9-54 with Dr. P. B. Menon in the chair. Dr. C. V. Narayana Iyer reported on the working of the Rural Medical Relief Centre, Kadalundi.

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The annual general body meeting was held on 2-10-54 with Dr. P. B. Menon in the chair. Sixty five doctors were present. Dr. K. M. Menon, the district medical officer inaugurated the meeting. Office bearers were elected with Dr. P. B. Menon as president and Dr. M. M. Mohamed Koya as secretary. Dr. B. Ramamurthy spoke on "Neuro Surgery and General Practitioner". Dr. D. S. Iyer spoke on "Some Common Surgical Problems". Dr. J. A. S. Masilamamy spoke on "Some Thoughts on the Management of Diabetes Mellitus".

**MALEGAON BRANCH**—The annual meeting of the branch was held on 12-9-54. The statement of accounts for the year 1953-54 was adopted. Office bearers were elected with Dr. B. D. Mehta as president and Dr. G. S. Parnaik as hony. general secretary.

**MANDYA BRANCH**—A meeting of the Executive Committee of the branch was held on 2-8-54 with Dr. K. Sundaresan in the chair. Eight members were present. It was decided to arrange the Annual General Body Meeting at Sivasamudram.

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The annual meeting of the branch was held on 29-8-54 with Dr. K. Sundaresan in the chair. Twenty-two members were present. Office bearers were elected with Dr. K. Sundaresan as president and Dr. B. Setu Rao as hony. secretary. The report for the year 1953-54 was adopted.

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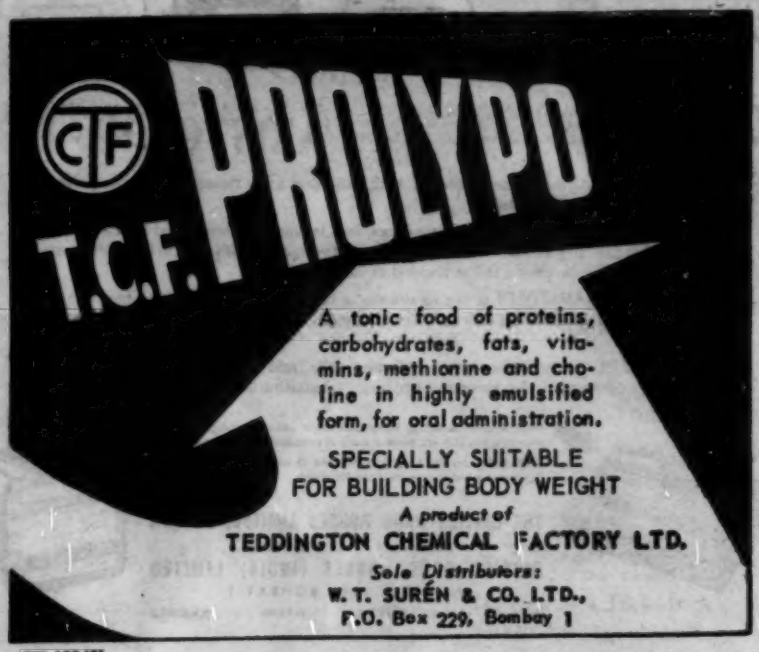
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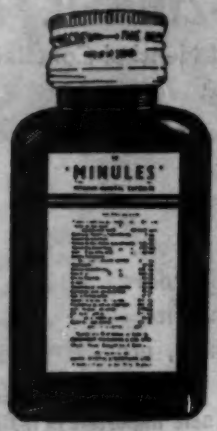


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Regd. No. C 1890 November 16, 1954

# Journal of the Indian Medical Association

## FORTNIGHTLY FROM OCTOBER 1954

We have much pleasure to announce that two issues of the Journal of the Indian Medical Association are being published every month, one on the 1st and the other on the 16th, with effect from October, 1954.

As General Practitioners form the bulk of the members of the Indian Medical Association, it has been decided to publish in every ordinary issue of the fortnightly, during its first year, two articles, specially written for them by experts, under a new section named "Refresher Course".

The text of each fortnightly issue would consist of at least 32 pages.

In Special Numbers and whenever occasion arises, the reading matter would be increased as necessary.

As the membership of the Indian Medical Association has increased from October 1954, over 19,000 copies of each issue are being published from October.

The rate of subscription for the Journal has been enhanced from Rs. 18/- to Rs. 24/- per annum from October, 1954. (Foreign—Rs. 30/- post free). Bonafide medical students may, however, subscribe this Journal at a concession rate of Rs. 12/- only per annum. Members of the Association will be receiving two issues of the Journal every month, without any extra charge.

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